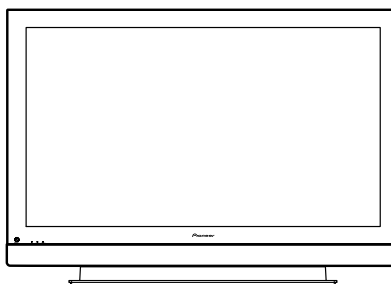


# Service Manual



PDP-6071PU

**PROVISIONAL**

PLASMA DISPLAY SYSTEM

# PDP-6071PU PDP-6070PU

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
PDP-6071PU	KUCXC	AC 120 V	
PDP-6070PU	KUCXC	AC 120 V	



For details, refer to "Important Check Points for good servicing".

# 1. NOTES ON SERVICE VISIT

## 1.1 SAFETY INFORMATION



This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.



### WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65



### NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

### REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

## SAFETY PRECAUTIONS

NOTICE : Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

The following precautions should be observed :

1. When service is required, even though the PDP UNIT an isolation transformer should be inserted between the power line and the set in safety before any service is performed.
2. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacture's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacture has become defective, or inadvertently defeated during servicing. Therefore, the following checks should be performed for the continued protection of the customer and servicetechnician.
  6. Perform the following precautions against unwanted radiation and rise in internal temperature.
    - Always return the internal wiring to the original styling.
    - Attach parts (Gasket, Ferrite Core, Ground, Rear Cover, Shield Case etc.) surely after disassembly.
  7. Perform the following precautions for the PDP panel.
    - When the front case is removed, make sure nothing hits the panel face, panel corner, and panel edge (so that the glass does not break).
    - Make sure that the panel vent does not break. (Check that the cover is attached.)
    - Handle the FPC connected to the panel carefully. Twisting or pulling the FPC when connecting it to the connector will cause it to peel off from the panel.
  8. Pay attention to the following.
    - Pay extreme caution when the front case and rear panel are removed because this may cause a high risk of disturbance to TVs and radios in the surrounding.

### Leakage Current Cold Check

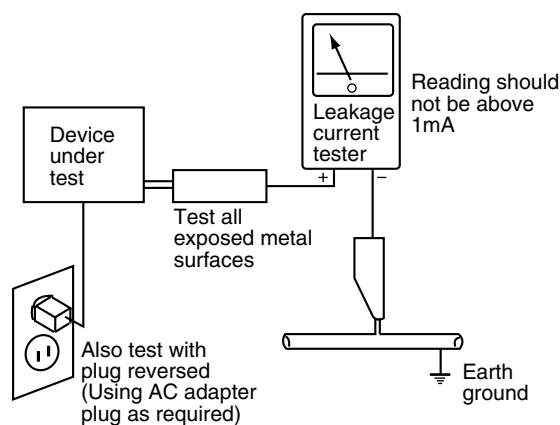
With the AC plug removed from an AC power source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of  $4M\Omega$ . The below  $4M\Omega$  resistor value indicate an abnormality which require corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

### Leakage Current Hot Check

Plug the AC line cord directly into an AC power source (do not use an isolation transformer for this check).

Turn the AC power switch on.

Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 1mA.



AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.**

### PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

## ■ Charged Section

A

The places where the commercial AC power is used without passing through the power supply transformer.

If the places are touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. Therefore, be sure to connect the set via an insulated transformer and supply the current.

1. Power cord
2. AC inlet
- B 3. Power switch (S1)
4. Fuse (In the POWER SUPPLY Unit)
5. STB transformer and Converter transformer (In the POWER SUPPLY Unit)
6. Other primary side of the POWER SUPPLY Unit

## ■ High Voltage Generating Point

The places where voltage is 100 V or more except for the charged places described above. If the places are touched, there is a risk of electric shock.

The VSUS voltage remains for several minutes after the power to the unit is turned off. These places must not be touched until about 10 minutes after the power is turned off, or it is confirmed with a tester that there is no residual VSUS voltage.

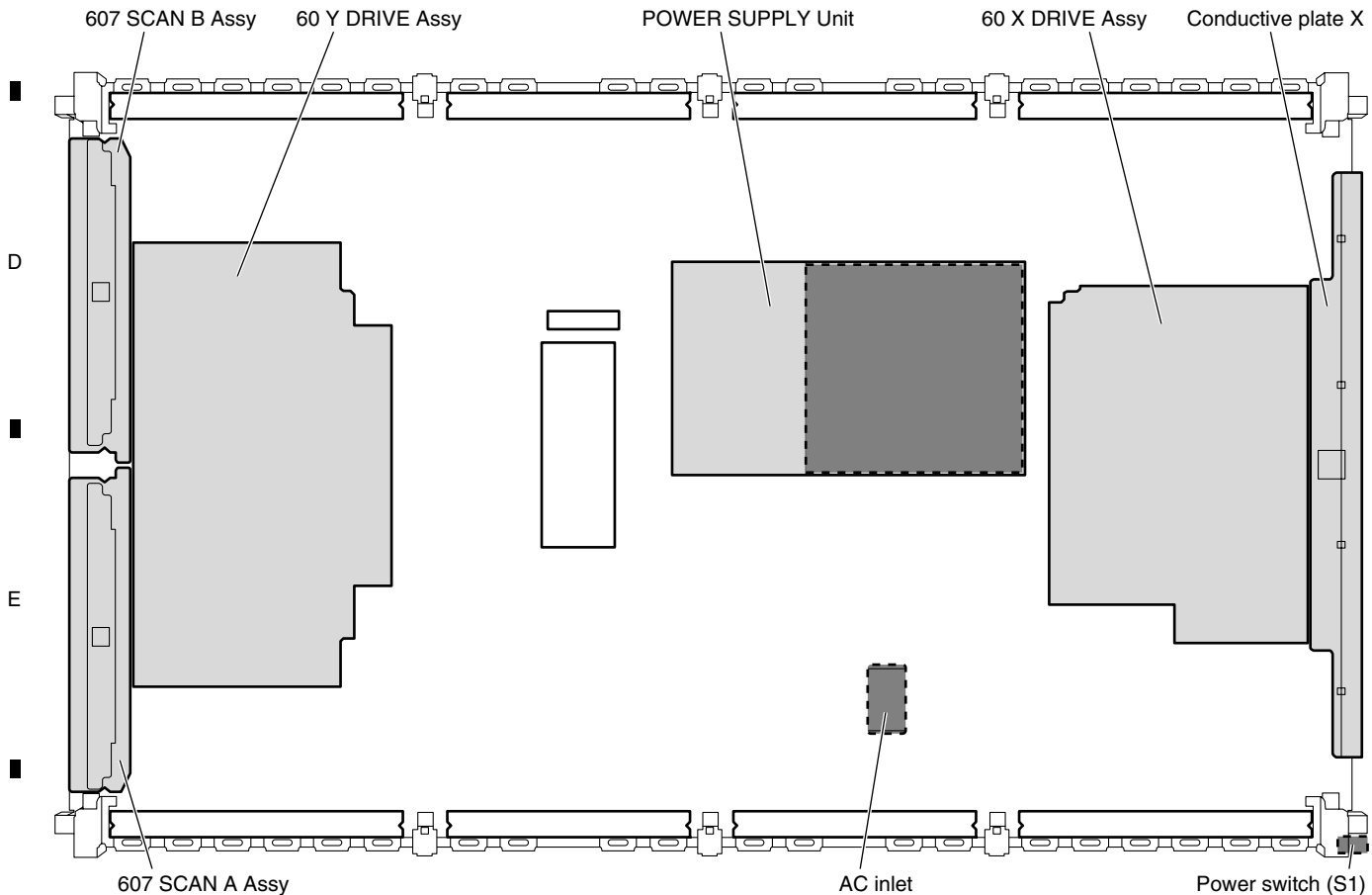
If the procedures described in “10.3 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM” are performed before the power is turned off, the voltage will be discharged in about 30 seconds.

POWER SUPPLY Unit.....	(205 V)
60 X DRIVE Assy.....	(-180 V to 205 V)
60 Y DRIVE Assy.....	(500 V)
607 SCAN A Assy.....	(500 V)
607 SCAN B Assy.....	(500 V)

■ : Part is Charged Section.

■ : Part is the High Voltage Generating Points other than the Charged Section.

C



F

Fig. High Voltage Generating Point (Rear view)



## [Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.  
Please be sure to confirm and follow these procedures.

### 1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.  
Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.  
In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.  
If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.  
Please pay attention to your surroundings and repair safely.

### 2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.  
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

### 3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance.  
Make sure the proper amount is applied.

### 4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

### 5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

## 1.2 JIGS LIST



### ■ Cleaning


Name	Part No.	Remarks
Cleaning liquid	GEM1004	Used to fan cleaning. Refer to "2.4 CHASSIS SECTION (1/2).
Cleaning paper	GED-008	

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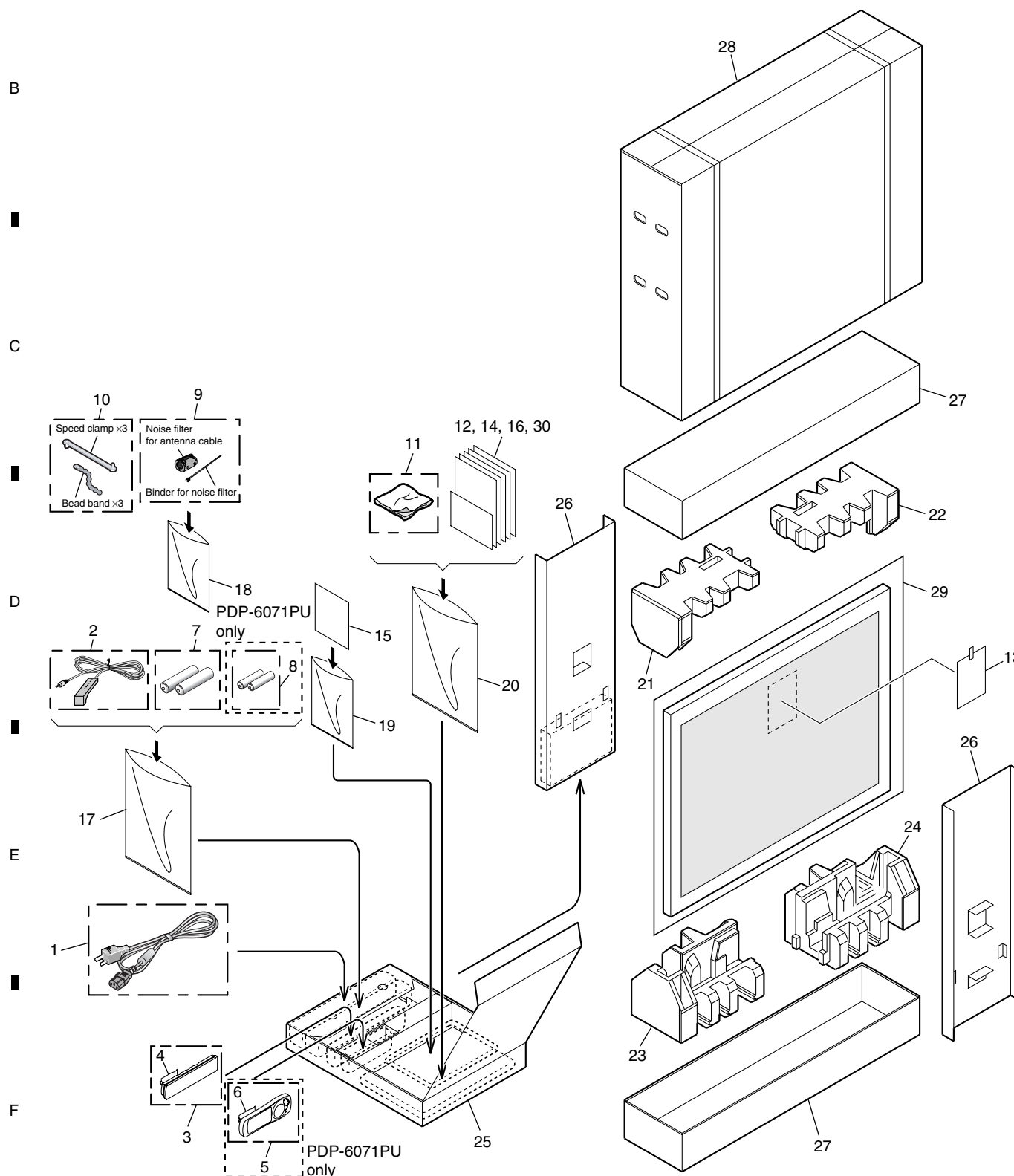
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## 2. EXPLODED VIEWS AND PARTS LIST

- NOTES:**
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
  - The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
  - Screws adjacent to ▼ mark on product are used for disassembly.
  - For the applying amount of lubricants or glue, follow the instructions in this manual.  
(In the case of no amount instructions, apply as you think it appropriate.)

### 2.1 PACKING SECTION



PDP-6071PU

## (1) PACKING PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
△ 1	Power Cord (2 m)	ADG1215	NSP 15	Warranty Card	ARY1138
2	G-LINK Cable (3 m)	VDX1010	NSP 16	Card	VRV1132
3	Remote Control Unit	AXD1536	17	Polyethylene Bag	AHG1303
4	Battery Cover	AZN2680	18	Vinyl Bag	AHG1337
5	Simplified Remote Control Unit	See Contrast table (2)	19	Vinyl Bag S	AHG1338
6	Battery Cover	See Contrast table (2)	20	Vinyl Bag	AHG1340
NSP 7	Alkaline Dry Cell Battery (LR6, AA)	VEM1023	21	Pad (607 T-L)	AHA2562
NSP 8	Dry Cell Battery (R03, AAA)	See Contrast table (2)	22	Pad (607 T-R)	AHA2563
9	Ferrite Core	CTX1054	23	Pad (607 B-L)	AHA2564
10	Binder Assy	AEC1908	24	Pad (607 B-R)	AHA2565
11	Cleaning Cloth	AED1285	25	Accessory Box	AHC1083
12	Operating Instructions (English, French, Spanish)	ARE1426	26	Reinforce Carton (607)	AHC1084
13	Caution Card	ARM1232	27	Under Carton (607)	AHD3486
14	Cleaning Caution	ARM1283	28	Upper Carton	See Contrast table (2)
			29	Mirror Mat	AHG1385
			30	Terminal Position Sheet	AAX3330

## (2) CONTRAST TABLE

PDP-6071PU/KUC and PDP-6070PU/KUC are constructed the same except for the following:

Mark	No.	Symbol and Description	PDP-6071PU/KUC	PDP-6070PU/KUC
NSP	5	Simplified Remote Control Unit	AXD1539	Not used
	6	Battery Cover	AZN2682	Not used
	8	Dry Cell Battery (R03, AAA)	VEM1036	Not used
	27	Upper Carton (6071)	AHD3487	Not used
	27	Upper Carton (6070PU)	Not used	AHD3537

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.  
●The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.  
Therefore, when replacing, be sure to use parts of identical designation.  
●When ordering resistors, first convert resistance values into code form as shown in the following examples.  
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 x 10<sup>1</sup> → 561 ..... RD1/4PU561J  
47k Ω → 47 x 10<sup>3</sup> → 473 ..... RD1/4PU473J  
0.5 Ω → R50 ..... RN2H50K  
1 Ω → 1R0 ..... RS1P1R0K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).  
5.62k Ω → 562 x 10<sup>1</sup> → 562 ..... RN1/4PC562JF

MarkNo.	Description	Part No.
LIST OF ASSEMBLIES		
NSP	1..PANEL CHASSIS (607) ASSY	AWU1178
NSP	2..60 ADDRESS ASSY	AWV2363
NSP	3..60 ADDRESS L ASSY	AWW1188
NSP	3..60 ADDRESS S ASSY	AWW1189
NSP	2..60 SCAN ASSY	AWV2364
	3..607 SCAN A ASSY	AWW1186
	3..607 SCAN B ASSY	AWW1187
	1..60 X DRIVE ASSY	AWV2366
C	1..60 Y DRIVE ASSY	AWV2367
NSP	1..60 DIGITAL ASSY	AWV2365
	2..60 DIGITAL ASSY	AWW1190
	2..SENSOR ASSY	AWW1191
	1..MAIN ASSY (US BB)	AWV2312
NSP	1..I/O ASSY	AWV2313
	2..POD ASSY	AWW1154
	2..TANSHI ASSY	AWW1156
	2..SIDE ASSY	AWW1157
D	NSP 1..60 AUDIO FUKUGO ASSY	AWV2347
	2..AUDIO ASSY	AWW1131
	2..SP TERMINAL ASSY	AWW1132
	2..SIDE KEY ASSY	AWW1133
	2..42 & 60 LED ASSY	AWW1134
	2..60 IR ASSY	AWW1137
	⚠ 1..POWER SUPPLY UNIT	AXY1139

Mark No.	Description	Part No.
60 ADDRESS L ASSY		
[60 ADR L LOGIC]		
SEMICONDUCTORS		
IC	1601	PEE003B
MISCELLANEOUS		
L	1601	QTL1013
CN	1601	AKM1291
CN	1602	AKM1348

RESISTORS		
R	1601-1605	RS1/16SS1000F
Other Resistors		RS1/16SS###J

Mark No.	Description	Part No.
CAPACITORS		
C	1601-1604,1607	CKSSYF104Z16
C	1605,1606	CKSSYB102K50
C	1608,1609	CKSRYB105K6R3
C	1651-1656	ACG1105
C	1657-1662	CKSSYF104Z16
[60 ADR L RESONANCE]		
SEMICONDUCTORS		
IC	1720	TND307TD
Q	1710,1711	QSZ2
Q	1731,1741,1751,1761	HAT3041R
Q	1771,1781	HAT3041R
Q	1790	2SA1163
Q	1791	RN1901
D	1710,1737,1747,1757	1SS302
D	1731,1741,1751,1761	UDZS15(B)
D	1734,1744,1754,1764	EP05FA20
D	1736,1738,1746,1748	1SS355
D	1756,1758,1766,1768	1SS355
D	1767,1777,1787	1SS302
D	1771,1781	UDZS15(B)
D	1774,1784	EP05FA20
D	1776,1778,1786,1788	1SS355
MISCELLANEOUS		
L	1730,1740,1750,1760	ATH1212
L	1770,1780	ATH1212

RESISTORS		
R	1710,1711	RS1/16SS220J
Other Resistors		RS1/16S###J

CAPACITORS		
C	1710	CKSYB105K25
C	1711	ACG1098
C	1730,1740,1750,1760	ACG1137
C	1731,1741,1751,1761	ACG1136
C	1770,1780	ACG1137
C	1771,1781	ACG1136

60 ADDRESS S ASSY		
[60 ADR S LOGIC]		
SEMICONDUCTORS		

5	Mark No.	Description
	IC	1801

### MISCELLANEOUS

L 1801  
CN 1801  
CN 1802

### RESISTORS

R 1801–1805  
Other Resistors

### CAPACITORS

C 1801–1804,1807  
C 1805,1806  
C 1808,1809  
C 1851–1855  
C 1857–1861

### [60 ADR S RESONANCE] SEMICONDUCTORS

IC 1920  
Q 1910,1911  
Q 1931,1941,1951,1961  
Q 1971  
Q 1990  
  
Q 1991  
D 1910,1937,1947,1957  
D 1931,1941,1951,1961  
D 1934,1944,1954,1964  
D 1936,1938,1946,1948  
  
D 1956,1958,1966,1968  
D 1967,1977  
D 1971  
D 1974  
D 1976,1978

### MISCELLANEOUS

L 1930,1940,1950,1960  
L 1970

### RESISTORS

R 1910,1911  
Other Resistors

### CAPACITORS

C 1910  
C 1911  
C 1930,1940,1950,1960  
C 1931,1941,1951,1961  
C 1970  
  
C 1971

## **SCAN ASSY**

### MISCELLANEOUS

2801ABA1349  
2801AEH1113

6	Part No.
	PEE003B

QTL1013  
AKM1291  
AKM1348

RS1/16SS1000F  
RS1/16SS###J

CKSSYF104Z16  
CKSSYB102K50  
CKSRYB105K6R3  
ACG1105  
CKSSYF104Z16

TND307TD  
QSZ2  
HAT3041R  
HAT3041R  
2SA1163

RN1901  
1SS302  
UDZS15(B)  
EP05FA20  
1SS355

1SS355  
1SS302  
UDZS15(B)  
EP05FA20  
1SS355

ATH1212  
ATH1212

RS1/16SS220J  
RS1/16S###J

CKSYB105K25  
ACG1098  
ACG1137  
ACG1136  
ACG1137

ACG1136

7	Mark No.	Description
		<b>607 SCAN A ASSY</b>

### SEMICONDUCTORS

IC 2801–2806  
D 2803–2807,2809  
D 2810

### MISCELLANEOUS

CN 2801  
CN 2802–2805

### RESISTORS

R 2801,2803  
R 2805,2810,2813,2816  
R 2819,2822  
Other Resistors

### CAPACITORS

C 2801,2802,2811,2812  
C 2803,2813,2823,2833  
C 2804,2806,2807,2814  
C 2808–2810,2818–2820  
C 2816,2817,2824,2826

C 2821,2822,2831,2832  
C 2827,2834,2836,2837  
C 2828–2830,2838–2840  
C 2841,2842,2851,2852  
C 2843,2853

C 2844,2846,2847,2854  
C 2848–2850,2858–2860  
C 2856,2857

### **607 SCAN B ASSY** SEMICONDUCTORS

IC 2901–2906  
D 2902,2904–2908  
D 2909

### MISCELLANEOUS

CN 2901  
CN 2902–2905

### RESISTORS

R 2903,2908,2911,2914  
R 2917,2920  
R 2921,2923  
Other Resistors

### CAPACITORS

C 2901,2902,2911,2912  
C 2903,2913,2923,2933  
C 2905–2907,2915–2917  
C 2908–2910,2918–2920  
C 2921,2922,2931,2932

C 2925–2927,2935–2937  
C 2928–2930,2938–2940  
C 2941,2942,2951,2952  
C 2943,2953

8	Part No.

SN755870KPZT-P  
1SS302  
1SS355

AKP1261  
AKM1360

RS1/8SQ124J  
RAB4C221J  
RAB4C221J  
RS1/16S###J

ACG1088  
CKSRYB105K6R3  
CCSRCH220J50  
CCSRCH151J50  
CCSRCH220J50

ACG1088  
CCSRCH220J50  
CCSRCH151J50  
ACG1088  
CKSRYB105K6R3

CCSRCH220J50  
CCSRCH151J50  
CCSRCH220J50

SN755870KPZT-P  
1SS302  
1SS355

AKP1261  
AKM1360

RAB4C221J  
RAB4C221J  
RS1/8SQ124J  
RS1/16S###J

ACG1088  
CKSRYB105K6R3  
CCSRCH220J50  
CCSRCH151J50  
ACG1088

CCSRCH220J50  
CCSRCH151J50  
ACG1088  
CKSRYB105K6R3

**Mark No. Description**

C 2945–2947,2955–2957  
C 2948–2950,2958–2960

**Part No.**

CCSRCH220J50  
CCSRCH151J50

**Mark No. Description****SEMICONDUCTORS**

IC 4101,4105  
IC 4102,4103  
IC 4104,4111  
IC 4106  
IC 4107

**Part No.**

S-1132B18-U5  
LTC3412EFE  
NJM2846DL3-05  
NJM2886DL3-15  
NJM2846DL3-33

**MAIN ASSY****MISCELLANEOUS**

8001ANH1645  
8002AEB1417  
⚠ 8003ADE1196

**SEMICONDUCTORS**

IC 6902  
IC 8202  
IC 8301  
IC 8402

AGC1008  
AGC1007  
AGC1016  
AGC1006

**[BOARD IF BLOCK(U)]  
SEMICONDUCTORS**

IC 4001–4005  
Q 4001,4002  
Q 4003  
Q 4004

TC74VCX541FT  
DTC124EUA  
RN2902  
DTA124EUA

**MISCELLANEOUS**

L 4001–4005  
F 4001–4003,4011–4016  
F 4005,4006  
CN 4001,4004  
CN 4005  
  
CN 4006  
CN 4009  
CN 4013  
CN 4018

BTX1042  
CTF1557  
VTF1084  
AKM1349  
AKM1348

KM200NA6  
AKM1274  
AKM1233  
AKM1213

**RESISTORS**

R 4001  
R 4002,4018  
R 4012,4017,4048  
R 4016  
R 4021–4024

RAB4CQ470J  
RS1/16S102J  
RS1/16S75R0F  
RS1/16S0R0J  
BCN1067

R 4073,4074  
Other Resistors

RS1/10S0R0J  
RS1/16SS###J

**CAPACITORS**

C 4001–4003,4007,4027  
C 4004  
C 4006,4009,4010,4026  
C 4011,4012,4017,4018  
C 4013,4020,4021,4023

CKSSYB104K10  
CCSSCH101J50  
CCSSCH221J50  
DCH1201  
CKSSYB102K50

C 4014  
C 4016  
C 4019,4022,4025,4030  
C 4024  
C 4033,4036,4039

CKSSYF104Z16  
ACG1128  
CKSRYB102K50  
CKSSYB102K50  
CKSRYB102K50

C 4043  
C 4051–4053

CKSSYB104K10  
CCSSCH470J50

**[POWER 0 BLOCK(U)]****MISCELLANEOUS**

L 4101  
L 4102,4106  
L 4108,4109

BTX1042  
BTX1039  
ATH1194

**RESISTORS**

R 4107,4110,4134–4136  
R 4119,4131,4146  
R 4120  
R 4123,4145  
R 4124

RS1/10S0R0J  
RS1/16SS3003D  
RS1/16SS2003D  
RS1/16SS1502F  
RS1/16SS6202D

R 4129  
R 4133  
R 4139  
R 4148  
Other Resistors

RS1/16SS3903D  
RS1/16SS1503D  
RS1/10S0R0J  
RS1/16S102J  
RS1/16SS###J

**CAPACITORS**

C 4101,4103,4106,4108  
C 4102,4104,4105,4107  
C 4109,4111,4116,4119  
C 4110,4117  
C 4112

CKSRYB105K10  
DCH1201  
DCH1201  
CCSSCH101J50  
CCG1232

C 4113,4128  
C 4114  
C 4120,4121,4135,4156  
C 4122  
C 4124,4126

CKSSYB103K16  
BCG1050  
CKSSYB104K10  
CCSSCH220J50  
DCH1165

C 4125  
C 4127  
C 4129  
C 4132,4133,4136,4137  
C 4138,4140

CKSRYB104K16  
CKSRYB105K10  
CCSSCH390J50  
BCG1059  
CCSSCH221J50

C 4139  
C 4142  
C 4147  
C 4165  
C 4172

CCSRCH101J50  
BCG1059  
CCSRCH102J50  
DCH1201  
CKSSYB104K10

**[ATUNER BLOCK(U)]  
SEMICONDUCTORS**

IC 4401  
IC 4402  
Q 4401,4416  
Q 4402,4405,4409,4417

TC74HC4066AFT  
AN5832SA  
DTC124EUA  
2SA1586





**Mark No. Description****Part No.**

C 4932,4933

DCH1201

**A [VDEC BLOCK(U)]  
SEMICONDUCTORS**

IC 5101

IC 5102

UPD64015AGM-UEU

EDS1616AGTA-75-E

**MISCELLANEOUS**

JA 5401,5402

X 5401

AKP1278

ASS1192

**RESISTORS**

R 5401-5403

R 5415

R 5450

R 5451

R 5452,5455

BCN1071

RS1/10S0R0J

RAB4CQ473J

RAB4CQ100J

RAB4CQ103J

R 5454

Other Resistors

RAB4CQ470J

RS1/16SS###J

**CAPACITORS**

C 5401,5402

C 5403,5404,5407-5412

C 5405,5452,5473

C 5406,5453

C 5416,5419-5446

CCSSCH120J50

CKSSYB104K10

DCH1201

CCSSCH101J50

CKSSYB104K10

**[CCD BLOCK(U)]  
SEMICONDUCTORS**

IC 4601

IC 4602,4603

Q 4601,4602

PEG150A

NJM2561F1

2SA1586

**MISCELLANEOUS**

X 4601

ASS1159

**RESISTORS**

R 4603,4648-4661,4666

R 4664

R 4667

Other Resistors

RAB4CQ473J

RAB4CQ102J

RAB4CQ473J

RS1/16SS###J

**CAPACITORS**

C 4601-4605,4608,4609

C 4606,4607

C 4612,4613

C 4614,4615

C 4616

CKSSYB104K10

CCG1205

CKSSYB102K50

CCSSCH221J50

CCSSCK2R0C50

C 4617

C 4618,4619

C 4620,4621

C 4622,4623

C 4627,4630,4631

CKSSYB153K16

DCH1201

CCSRCH331J50

CCSRCH5R0C50

CKSSYB104K10

**[DTUNER BLOCK(U)]  
SEMICONDUCTORS**

IC 6001

IC 6002,6003

IC 6004,6005

Q 6001

Q 6002

MCP3021A5-I/OTG

UPC3219GV

MM1565AF

DTC124EUA

2SC4116

Q 6003-6005

Q 6006

D 6001-6003

D 6004

2SC5084

BB504CDS

1SS355

UDZS30(B)

**RESISTORS**

R 5101-5103,5138

R 5104,5105

R 5106-5108

R 5114

R 5120,5123,5124

ACN1246

BCN1067

RS1/16S0R0J

RS1/16SS6200D

RS1/16SS2000F

R 5127

R 5133

R 5137

Other Resistors

RS1/16S334J

RAB4CQ220J

RS1/10S0R0J

RS1/16SS###J

**CAPACITORS**

C 5101-5105

C 5106,5107

C 5108

C 5109,5110,5154,5155

C 5114-5124,5127-5129

CKSSYB103K16

CCSSCH8R0D50

CKSSYB102K50

DCH1201

CKSSYB104K10

C 5134,5135,5156-5165

C 5167-5170,5172-5174

C 5177-5180

CKSSYB104K10

CKSSYB104K10

CKSSYB104K10

**[ADC BLOCK(U)]  
SEMICONDUCTORS**

IC 5301

AD9985KSTZ-110

**RESISTORS**

R 5301-5303

R 5304,5306-5308

R 5305

R 5310,5311

Other Resistors

BCN1067

RS1/16SS470J

RS1/16SS2701F

RS1/10S0R0J

RS1/16S###J

**CAPACITORS**

C 5301

C 5302

C 5303-5305

C 5307-5316,5318,5319

CKSSYB823K10

CKSSYB822K16

CKSSYB473K16

CKSSYB104K10

**[HDMI BLOCK(U)]  
SEMICONDUCTORS**

IC 5401

IC 5402

IC 5403,5404

Q 5401,5402

Q 5407,5408

SII9023CTU

PCM1754DBQ

BR24L02FJ-W

HN1K02FU

UMD2N

Q 5413,5414

D 5401,5402

D 5407,5408

RN1902

1SS301

UDZS6R8(B)

5  
**Mark No. Description**

6  
**Part No.**

**MISCELLANEOUS**

L 6001,6002	BTH1121
L 6003	LCTAW1R5J2520
L 6004	LCYA10NJ2520
L 6006	LCYAR82J2520
F 6001	BTF1130
F 6002-6006	VTF1084
F 6007	ATF1219
F 6008,6009	VTF1080
⚠ U 6001	AXF116

**RESISTORS**

R 6011	RS1/16SS6801F
R 6023	RS1/16SS2201F
R 6024	RS1/16SS4703F
R 6025	RS1/16SS1502F
R 6026	RS1/16SS6802F
R 6027	RS1/16SS5602F
R 6028	RS1/16SS4701F
R 6041	RS1/16SS1001F
Other Resistors	RS1/16SS###J

**CAPACITORS**

C 6001	ACH1442
C 6004,6005,6008	CKSSYB104K10
C 6006	CKSQYB225K10
C 6007,6043	BCG1064
C 6009,6010	CKSSYB471K50
C 6011,6012,6014-6017	CKSSYB103K16
C 6013	CCSSCK2R0C50
C 6019,6022-6031,6034	CKSSYB103K16
C 6032,6033	CKSSYB102K50
C 6035	CKSSYB103K16
C 6036	CEHVKW101M6R3
C 6038,6040	CKSQYB105K16
C 6039,6041,6042	DCH1201

**[QPSK BLOCK(U)]  
SEMICONDUCTORS**

IC 6101	UPC3220GR
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**MISCELLANEOUS**

L 6101	LCTAW1R5J2520
L 6102	LCYA56NJ2520
L 6103,6104	LCYA68NJ2520
L 6105,6106	LCYA82NJ2520
L 6107	LCYAR10J2520
F 6101	ATF1215
F 6102	VTF1084
All Resistors	RS1/16SS###J

**CAPACITORS**

C 6101,6103,6105	CCSSCH270J50
C 6102	CCSSCH100D50
C 6104	CCSSCH120J50
C 6106	CCSSCH560J50
C 6107	CKSSYB271K50

7  
**Mark No. Description**

C 6108,6109,6115-6120	CKSSYB103K16
C 6110,6112,6114,6121	CKSSYB102K50
C 6111,6113	CCSSCH390J50
C 6123	CKSSYB102K50
C 6124-6126	CCSSCH101J50

**[F/E IC BLOCK(U)]  
SEMICONDUCTORS**

IC 6201	BCM3517KQLGB0
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**MISCELLANEOUS**

L 6201	BTX1042
L 6202	LCTAW1R8J2520
F 6201-6205	VTF1084
X 6201	BSS1134

**RESISTORS**

R 6211,6213	RS1/16S3010F
R 6237	RAB4CQ101J
R 6238,6240	RAB4CQ330J
Other Resistors	RS1/16SS###J

**CAPACITORS**

C 6201,6203,6206,6208	DCH1201
C 6202,6204,6205	BCG1059
C 6209-6219,6222-6232	CKSSYB103K16
C 6220,6221,6233	CCSSCH120J50
C 6234	CCSSCH150J50
C 6235-6237,6240-6252	CKSSYB103K16
C 6239	CKSSYB102K50
C 6253,6254,6256	CKSSYB104K10

**[7038\_0 BLOCK(U)]  
SEMICONDUCTORS**

IC 6301	BCM7038KPB1G-B2
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**MISCELLANEOUS**

F 6301-6310	VTF1084
F 6312	ATX1058

**RESISTORS**

R 6302,6346	RAB4CQ472J
R 6303-6305,6308-6310	BCN1072
R 6313	RAB4CQ102J
R 6336	RAB4CQ101J
Other Resistors	RS1/16SS###J

**CAPACITORS**

C 6301	ACH1442
C 6302-6306	BCG1059
C 6307-6320	CKSSYB103K16
C 6321	ACH1421
C 6322-6357,6361,6364	CKSSYB104K10

C 6360,6362,6365,6366	CKSSYB102K50
C 6367,6368	CKSSYB104K10
C 6369	DCH1201

**[7038\_1 BLOCK(U)]  
SEMICONDUCTORS**

Q 6401	RN1901
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**Mark No. Description****Part No.****Mark No. Description****Part No.****MISCELLANEOUS**

F 6401-6412

VTF1084

**RESISTORS**

R 6401  
R 6402,6404  
R 6405-6407,6410-6412  
R 6420  
R 6444

RS1/16SS1002F  
RS1/16SS1101F  
RS1/16SS75R0F  
RAB4CQ102J  
BCN1071

R 6445  
Other Resistors

BCN1067  
RS1/16SS###J

**CAPACITORS**

C 6401  
C 6402  
C 6403-6414  
C 6416-6428

DCH1201  
CCSSCH150J50  
CKSSYB103K16  
CKSSYB104K10

**[7038 DDR BLOCK(U)]  
SEMICONDUCTORS**

IC 6601  
IC 6602-6605

LP2995M  
EDD2516AKTA-6B

**MISCELLANEOUS**

L 6601

BTX1039

**CAPACITORS**

C 6602,6607-6611  
C 6603-6606  
C 6612,6620,6633,6642  
C 6613-6619,6621,6622  
C 6624,6625,6627-6632

CKSSYB103K16  
CKSSYB104K10  
CKSSYB471K50  
CKSSYB103K16  
CKSSYB103K16

C 6634-6641,6643,6645  
C 6648  
C 6649-6651

CKSSYB103K16  
CEHVKW331M6R3  
BCG1059

**[DDR REG BLOCK(U)]  
RESISTORS**

R 6783,6788-6790,6795  
R 6784-6787,6791-6794  
R 6796,6801,6802,6816  
R 6797-6800,6803-6806  
R 6807-6809,6811,6839

RAB4CQ101J  
RAB4CQ220J  
RAB4CQ101J  
RAB4CQ220J  
RAB4CQ510J

R 6810,6812-6815  
R 6817-6820,6824-6827  
R 6821-6823,6828,6829  
R 6830-6833,6836-6838  
R 6834,6835

RAB4CQ220J  
RAB4CQ220J  
RAB4CQ101J  
RAB4CQ220J  
RAB4CQ101J

R 6840  
Other Resistors

RAB4CQ220J  
RS1/16SS###J

**CAPACITORS**

C 6704-6711  
C 6801-6803

CKSSYB103K16  
DCH1201

**[7038 FLASH BLOCK(U)]  
SEMICONDUCTORS**

IC 6901  
IC 6903  
Q 6901  
Q 6902  
Q 6903

TC7WH02FU  
BR24L64F-W  
2SA1586  
UMD2N  
2SC4116

**MISCELLANEOUS**

D 6902,6903

UDZS4R7(B)

L 6901  
F 6901-6904  
JA 6901  
X 6901  
CN 6901

LCTAW2R2J2520  
CTF1557  
AKN1073  
BSS1134  
BKP1159

**RESISTORS**

R 6912,6913  
R 6952  
Other Resistors

RS1/16S3010F  
RAB4CQ472J  
RS1/16SS###J

**CAPACITORS**

C 6901  
C 6902-6908  
C 6909  
C 6911,6916  
C 6912,6913

DCH1201  
CCSSCH101J50  
CKSRYB105K10  
CCSSCH8R0D50  
CCSSCH120J50

C 6915,6919  
C 6917,6923,6924

CKSSYB103K16  
CKSSYB104K10

**[DT VDEC BLOCK(U)]  
SEMICONDUCTORS**

IC 7001  
IC 7002  
Q 7004

TVP5160PNP  
EDS1616AGTA-75-E  
2SC4116

**MISCELLANEOUS**

F 7001-7006  
F 7007  
X 7001

VTF1084  
ATX1058  
BSS1119

**RESISTORS**

R 7001-7003,7009  
R 7004,7005  
R 7010-7013  
R 7014  
Other Resistors

RAB4CQ101J  
BCN1072  
RAB4CQ510J  
BCN1071  
RS1/16SS###J

**CAPACITORS**

C 7001-7003,7005  
C 7006  
C 7014,7015  
C 7016-7054

DCH1201  
CKSSYB102K50  
CCSSCH100D50  
CKSSYB104K10

**[DT AV BLOCK(U)]  
SEMICONDUCTORS**

IC 7101  
IC 7102,7104,7107  
IC 7103,7106  
IC 7105

PCM1803DB  
NJM2068V  
NJM2746V  
R5520H001B

**MISCELLANEOUS**

L 7101,7102  
L 7103,7104  
L 7106  
F 7101-7103  
JA 7101

BTH1107  
BTX1042  
ATH1160  
VTF1084  
VKS1001

CN 7101

AKM1276

**RESISTORS**

R 7103,7119

RS1/16SS2402F

5	6	7	8
Mark No. Description Part No.	Mark No. Description Part No.	Mark No. Description Part No.	Mark No. Description Part No.
R 7104,7118 R 7107,7109 R 7110 R 7144,7145,7151,7152  R 7155,7156,7195,7196 Other Resistors	RS1/16SS1002F RAB4CQ103J RAB4CQ101J RS1/16SS3302F  RS1/16SS3302F RS1/16SS###J	R 7344-7346 Other Resistors  <b>CAPACITORS</b> C 7301-7303,7305 C 7304 C 7306-7315,7319,7320 C 7321-7323	BCN1067 RS1/16SS###J  CKSSYB102K50 CCSSCH680J50 CKSSYB104K10 CKSSYB102K50
<b>CAPACITORS</b> C 7102,7165,7174,7177 C 7103,7109,7110 C 7107,7108 C 7111-7114 C 7115,7117,7119,7120  C 7116,7118 C 7122-7124,7130 C 7125,7131,7148,7154 C 7127,7128,7150,7151 C 7132,7133,7155,7156  C 7135 C 7136,7138,7166,7167 C 7139,7140,7162,7163 C 7145-7147,7153 C 7171-7173	DCH1165 DCH1201 CKSRYB105K10 CCSRCH331J50 CKSSYB103K16  CKSSYB271K50 CCSSCH220J50 CKSSYB391K50 CCSSCH560J50 CKSSYB103K16  ACH1421 CKSSYB104K10 CKSSYB821K50 CCSSCH220J50 CKSSYB104K10	<b>[POWER_1 BLOCK(U)] SEMICONDUCTORS</b> IC 7401 IC 7402 IC 7403 IC 7405,7406,7408 IC 7407  D 7402-7408  <b>MISCELLANEOUS</b> L 7401,7403 F 7401  <b>RESISTORS</b> R 7401,7407 Other Resistors	NJM2370U09 NJM2871BF05 MM1563DF NJM2846DL3-33 NJM2846DL3-18  1SS355  BTX1042 VTF1084  RS1/10S0R0J RS1/16SS###J
<b>[DT D_VIDEO BLOCK(U)] SEMICONDUCTORS</b> IC 7201	PE5436A		
<b>MISCELLANEOUS</b> L 7201	BTX1042		
<b>RESISTORS</b> R 7202,7207,7208,7211 R 7212,7215 R 7214,7249 R 7248 R 7251  Other Resistors	RAB4CQ0R0J RAB4CQ472J BCN1067 RAB4CQ470J RAB4CQ101J  RS1/16SS###J	<b>CAPACITORS</b> C 7401,7403,7406-7408 C 7405 C 7409 C 7412 C 7413  C 7415 C 7416 C 7417-7420,7423,7424 C 7421 C 7422,7426,7428  C 7427 C 7429	CKSSYB104K10 CKSRYB104K16 CKSQYB225K10 CKSSYB103K16 CKSSYB471K50  CEHVKW470M16 CEHVKW220M16 DCH1201 BCG1060 CKSRYB105K10  BCG1059 DCH1201
<b>CAPACITORS</b> C 7201-7206 C 7208,7209,7211-7214 C 7210 C 7220	CKSSYB104K10 CKSSYB102K50 CKSSYB471K50 DCH1201	<b>[POWER_2 BLOCK(U)] SEMICONDUCTORS</b> IC 7501 IC 7502-7505 IC 7506 Q 7501,7502 Q 7503-7506  Q 7507 Q 7508-7510 D 7501-7504 D 7505	PQ200WNA1ZPH R1224N102H PST3628UR 2SA1586 CPH6311  DTC124EUA RN1901 D1FM3 1SS355
<b>[POD BLOCK(U)] SEMICONDUCTORS</b> IC 7301 IC 7302 IC 7303 IC 7304 IC 7305,7306	TC74LCX245FTS1 CIMAXSP2L TC74LCX257FT TC74LCX244FTS1 TC74LCX373FT	<b>MISCELLANEOUS</b> L 7501,7504 L 7502,7503 L 7505,7506  <b>RESISTORS</b> R 7502-7504 R 7505,7506 R 7507,7508 R 7511,7538 R 7530  R 7531 R 7532	ATH1161 ATH1192 BTX1042  RS1/4S1R5J RS1/4S3R3J RS1/10S271J RS1/16SS2202F RS1/16SS5102F  RS1/16SS8201F RS1/16SS9101F
<b>MISCELLANEOUS</b> F 7301,7302 F 7303 CN 7301,7302	ATX1058 VTF1084 AKM1354		
<b>RESISTORS</b> R 7305,7317,7333-7335 R 7323,7339,7342 R 7336,7338,7343 R 7337,7341 R 7340	RAB4CQ470J BCN1067 RAB4CQ103J RAB4CQ470J RAB4CQ0R0J		

**Mark No. Description**

R 7533  
R 7539  
R 7550,7565

**Part No.**

RS1/16SS2402F  
RS1/16SS3302F  
RS1/16SS5602F

**Mark No. Description**

C 8101  
C 8102,8126  
C 8103-8106,8108-8111  
C 8107,8112-8120  
C 8121-8125,8127-8129  
  
C 8134-8147

**Part No.**

CKSSYB102K50  
DCH1201  
CCSSCH221J50  
CKSSYB104K10  
CCSSCH221J50  
  
CKSSYB104K10

**CAPACITORS**

C 7501,7502  
C 7503  
C 7504,7508,7513  
C 7506,7507  
C 7509

ACH1442  
CKSSYB104K10  
CKSSYB103K16  
CKSSYB102K50  
CKSSYB332K50

**[MULTI BLOCK(U)]  
SEMICONDUCTORS**

IC 8201  
IC 8203

PEG121B  
TC74VHC08FTS1

**MISCELLANEOUS**

L 8201-8204

BTX1042

**RESISTORS**

R 8201-8205  
R 8206-8208,8255  
R 8214,8215,8248  
R 8225,8245  
R 8246

ACN1246  
ACN1251  
RAB4CQ103J  
BCN1071  
BCN1073

R 8249  
R 8250  
Other Resistors

RAB4CQ680J  
RS1/10S0R0J  
RS1/16SS###J

**CAPACITORS**

C 8202  
C 8203-8206,8221-8234  
C 8207,8240-8242  
C 8208-8220  
C 8235

CKSSYB102K50  
CKSSYB104K10  
DCH1201  
CCSSCH221J50  
BCG1059

C 8239

CKSSYB104K10

**[IF UCOM BLOCK(U)]  
SEMICONDUCTORS**

IC 8302  
IC 8303  
IC 8304  
IC 8305  
IC 8306

PST9230N  
TC74VHC08FTS1  
TC7W126FU  
TC74VHC00FTS1  
MAX3232CPW

IC 8307  
Q 8303-8305  
Q 8306,8307  
D 8301-8304

TC74VHC125FTS1  
DTC124EUA  
2SA1586  
1SS355

**MISCELLANEOUS**

X 8301  
X 8302  
CN 8301

ASS1168  
ASS1172  
AKP1213

**RESISTORS**

R 8322  
R 8348-8352  
Other Resistors

RAB4CQ473J  
RAB4CQ103J  
RS1/16SS###J

**CAPACITORS**

C 8301  
C 8302,8303  
C 8305,8321  
C 8306-8311,8314-8320  
C 8312,8313

CKSSYB472K25  
CCSSCH220J50  
CKSSYB471K50  
CKSSYB104K10  
DCH1201

**[MAIN UCOM BLOCK(U)]****[DSEL BLOCK(U)]  
SEMICONDUCTORS**

IC 8001  
IC 8002  
IC 8003

PD6523A  
TC74LCX125FT  
TC74VCX574FT

**MISCELLANEOUS**

L 8001,8002  
F 8001,8002  
⚠ F 8004  
X 8001

BTX1042  
VTF1080  
ATX105  
ASS1194

**RESISTORS**

R 8001-8003  
R 8004-8006  
R 8026,8027  
Other Resistors

ACN1251  
BCN1071  
RAB4CQ101J  
RS1/16SS###J

**CAPACITORS**

C 8001  
C 8002  
C 8003,8006-8013  
C 8004  
C 8005,8014-8025,8027

CCSRCH221J50  
CKSSYB102K50  
CCSSCH221J50  
CKSSYF104Z16  
CKSSYB104K10

C 8026,8028-8030

DCH1201

**[IP BLOCK(U)]  
SEMICONDUCTORS**

IC 8101  
IC 8102,8103

PE5504B  
EDS6432AFTA-75-E

**MISCELLANEOUS**

L 8101-8104  
F 8101

BTX1042  
ATX1058

**RESISTORS**

R 8101-8104,8106-8110  
R 8105  
R 8111,8116  
R 8112-8115,8117  
R 8123

BCN1067  
BCN1071  
ACN1246  
ACN1251  
RAB4CQ103J

R 8135  
R 8136  
Other Resistors

RAB4CQ470J  
RAB4CQ101J  
RS1/16SS###J

**CAPACITORS**





1

2

3

4

**Mark No.**      **Description**

**Part No.**

**Mark No.**      **Description**

**Part No.**

⚠ All Resistors

RS1/16S###

## AUDIO ASSY

### MISCELLANEOUS

3772,3773PMB30P100FNI  
3774,3775VBB30P100FNI

### CAPACITORS

C 3903,3911,3917,3919  
C 3904,3912,3918,3920  
⚠ C 3905,3907,3913,3915  
⚠ C 3921-3924

CKSRYB682K50  
CKSRYF104Z50  
CCSRCH221J5  
CCSRCH221J5

### SEMICONDUCTORS

IC 3751  
IC 3752  
IC 3753  
Q 3751,3754,3755,3757  
Q 3756,3759

LA4625  
PQ120DNA1ZPH  
NJW1183GK1  
2SA1586  
2SC4116

## SIDE KEY ASSY

### MISCELLANEOUS

⚠ L 9501-9504  
S 9501-9507  
All Resistors

QTL101  
CSG1155  
RS1/16S###J

### CAPACITORS

C 9501  
C 9502,9503

CKSRYF104Z16  
CCSRCH101J50

### MISCELLANEOUS

KN 3751,3752  
CN 3751

VNF1084  
B3P-VH

### RESISTORS

R 3803  
Other Resistors

RD1/2MMF2R2J  
RS1/16S###J

## 42 & 60 LED ASSY

### SEMICONDUCTORS

D 9601  
D 9602  
D 9603

SML-521MDW  
TLRV1022  
SML512BC4T

### MISCELLANEOUS

CN 9601  
All Resistors

AKP1303  
RS1/16S###J

### CAPACITORS

C 9606,9610,9614  
C 9611

CKSSYF103Z50  
CKSRYF103Z50

## 60 IR ASSY

### SEMICONDUCTORS

IC 9801  
Q 9801  
D 9801

SBX3050-01  
2SA1586  
1SS302

### MISCELLANEOUS

CN 9801

AKP1303

### RESISTORS

R 9801-9803  
Other Resistors

RS1/16S0R0J  
RS1/16SS###J

### CAPACITORS

C 9801  
C 9802  
C 9803  
All Resistors

CKSSYB102K50  
CKSSYF104Z16  
ACG7046  
RS1/16S###J

## SP TERMINAL ASSY

### MISCELLANEOUS

⚠ F 3901,3902  
JA 3901

ATF122  
AKE1061

## 60 DIGITAL ASSY

### SEMICONDUCTORS

PDP-6071PU



5	6	7	8	
Mark No.	Description	Part No.	Mark No.	Description
IC 3301	AGC1026	CN 3301	CKS4835	
<b>60 DIGITAL ASSY</b>		<b>RESISTORS</b>		A
<b>[FRONT RX BLOCK]</b>		R 3307,3308	RAB4C101J	
<b>MISCELLANEOUS</b>		Other Resistors	RS1/16SS###J	
F 3001	CCG1162	<b>CAPACITORS</b>		
KN 3001	ANK1664	C 3301–3303,3306,3308	CKSSYB104K10	
CN 3001	AKM1353	C 3304,3307,3309	CKSSYB472K16	
CN 3002	AKM1235	C 3305,3310	CKSSYB102K50	
		C 3311	CCSRCH470J50	
		C 3315,3316	CKSSYB104K10	
<b>RESISTORS</b>		C 3317	CCSRCH471J50	B
R 3007,3010–3016	RAB4C470J	<b>[ASTRA BLOCK]</b>		
R 3020–3022	RAB4C103J	<b>SEMICONDUCTORS</b>		
Other Resistors	RS1/16SS###J	IC 3401	PEG122C	
<b>[MODULE UCOM BLOCK]</b>		<b>MISCELLANEOUS</b>		
<b>SEMICONDUCTORS</b>		L 3401–3403	QTL1013	
IC 3152,3153	SN74AHC541PW	F 3401,3402	CCG1162	
IC 3155	SN74AHC08PW	<b>RESISTORS</b>		C
IC 3156	BR24L04FJ-W	R 3402,3412	RAB4C101J	
IC 3157	M62334FP	R 3405–3407,3409,3410	RAB4C220J	
IC 3158	MM1522XU	R 3416,3417	RAB4C220J	
		R 3425	RS1/16SS5601F	
		Other Resistors	RS1/16SS###J	
IC 3159	TC7W126FU	<b>CAPACITORS</b>		
IC 3160,3161	TC74VHC123AFTS1	C 3402,3419,3425,3441	ACH1396	
Q 3151	2SJ461A	C 3403–3410,3412,3413	CKSSYB104K10	
D 3151,3152,3154,3155	DAN202U	C 3414–3416,3426–3438	CKSRYB105K6R3	
D 3158,3159,3161-3163	1SS355	C 3417,3418,3420–3424	CKSSYB104K10	D
		C 3439,3440,3442–3449	CKSSYB104K10	
<b>MISCELLANEOUS</b>		<b>[ADDRESS BLOCK]</b>		
X 3151	CSS1616	<b>SEMICONDUCTORS</b>		
CN 3151	AKM1276	Q 3501,3502	DTC143EUA	
CN 3152	CKS4828	Q 3503,3506	RN1901	
		D 3501–3504	DAN202U	
<b>RESISTORS</b>		<b>MISCELLANEOUS</b>		
R 3155,3160,3170,3176	RAB4C101J	CN 3501–3510	AKM1348	E
R 3174,3216	RAB4C103J	<b>RESISTORS</b>		
Other Resistors	RS1/16SS###J	R 3518,3524,3538,3551	RAB4C101J	
		R 3519,3525	RAB4C472J	
		R 3539,3550	RAB4C222J	
		Other Resistors	RS1/16SS###J	
<b>CAPACITORS</b>		<b>CAPACITORS</b>		
C 3151	CEHVKW470M6R3	C 3501–3512,3520–3523	CKSSYB102K50	
C 3152,3153,3155–3158	CKSSYB104K10	<b>[DIGITAL DD CON BLOCK]</b>		F
C 3159,3171,3172,3182	CKSRYB105K6R3	<b>MISCELLANEOUS</b>		
C 3160	CKSSYB102K50	U 3601	AXY1137	
C 3161–3163,3165,3166	CKSSYB104K10			
C 3164	CCSSCH101J50			
C 3167	CKSSYB103K16			
C 3168,3170,3181	CKSSYB104K10			
<b>[PANEL FLASH BLOCK]</b>				
<b>SEMICONDUCTORS</b>				
IC 3302,3305	PST3628UR			
IC 3303	SN74AHC08PW			
IC 3304	PST3610UR			
Q 3301	RN1901			
Q 3302	HN1C01FU			
<b>MISCELLANEOUS</b>				
X 3302	ASS1188			

	1	2	3	4		
	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
A	<b><u>RESISTORS</u></b>		<b>[X RESONANCE BLOCK] <u>SEMICONDUCTORS</u></b>			
	R 3611	RAB4C101J	IC 1101,1104	TND307TD		
	Other Resistors	RS1/16SS###J	IC 1102	PS9117		
			IC 1103,1131	AXF1159		
			IC 1151	BA10393F		
			Q 1101	2SC2412K		
			Q 1102,1103,1131,1132	QSZ2		
			Q 1151	2SC4081		
			D 1101	UDZS5R6(B)		
			D 1106,1135	D1FL40		
B			D 1112,1141	1SS302		
	<b><u>[THERMAL SENSOR BLOCK] CAPACITORS</u></b>		<b><u>MISCELLANEOUS</u></b>			
	C 3702	ACH1394	L 1101,1131	ATH1213		
			L 1102,1132	ATH1215		
	<b>PANEL SENSOR ASS'Y <u>SEMICONDUCTORS</u></b>		<b><u>RESISTORS</u></b>			
	IC 3651	MM1522XU	R 1109,1118,1132,1141	RS1/10S2R2J		
	IC 3652	BR24L02FJ-W	R 1112,1135	ACN1174		
	Q 3651	HN1B04FU	R 1114,1117,1137,1140	RS3LMF100J		
			R 1115,1116,1138,1139	RS1/10S104J		
			R 1121	RS1/16S3300F		
C	<b><u>MISCELLANEOUS</u></b>		R 1151,1154	RS1/10S1003F		
	CN 3651	AKM1276	R 1152,1155	RS1/16S5601F		
	All Resistors	RS1/16SS###J	R 1156,1157	RS1/16S6801F		
			Other Resistors	RS1/16S###J		
	<b><u>CAPACITORS</u></b>		<b><u>CAPACITORS</u></b>			
	C 3651,3653	CKSRYB105K6R3	C 1101,1151,1153	CKSRYB104K16		
	C 3652,3654	CKSSYB103K16	C 1102,1113,1131,1143	CEHAT470M25		
	C 3656,3657	CKSSYB104K10	C 1103,1114	CKSRYF104Z50		
			C 1104,1117,1132,1144	CKSYB105K25		
			C 1106,1108,1135,1136	CCG1186		
D	<b>60 X DRIVE ASSY <u>MISCELLANEOUS</u></b>		C 1115,1116,1141,1142	ACG1112		
	1001	BMZ30P080FTC	C 1118-1121,1156-1159	ACE1168		
	1001	ANH1639	C 1154	CKSSYB104K10		
	1002	AEH1092	C 1155	CKSRYB105K10		
			<b><u>[X SUS BLOCK] SEMICONDUCTORS</u></b>			
	<b><u>[X LOGIC BLOCK] SEMICONDUCTORS</u></b>		IC 1201,1206	PS9117		
	IC 1001	TC74ACT541FT	IC 1202,1207,1208,1210	TND307TD		
	IC 1002	TC74ACT540FT	IC 1203,1205	AXF1160		
	IC 1003	TC74VHC00FTS1	IC 1204	PQ05DZ11		
	D 1001,1002	1SS355	IC 1209	TC7SH04FUS1		
E	<b><u>MISCELLANEOUS</u></b>		IC 1211	PQ09DZ11		
	VR1001,1002	CCP1390	Q 1201	2SC2412K		
	CN1001	AKM1348	Q 1202,1205,1208,1209	QSZ2		
			Q 1203	HN1B04FU		
			Q 1204	DTC124EUA		
	<b><u>RESISTORS</u></b>		Q 1206	2SC4081		
	R 1001,1003,1009	RAB4C470J	Q 1207	R5009ANJ		
	R 1005,1006,1011	RAB4C472J	Q 1251	DTC143EK		
	Other Resistors	RS1/16S###J	Q 1252	DTC123TKA		
			D 1201,1205	UDZS5R6(B)		
F	<b><u>CAPACITORS</u></b>		D 1202,1203,1206,1210	CRH01		
	C 1001,1003	CEHAT470M16	D 1204,1211	1SS355		
	C 1002,1004,1005	CKSRYB104K16	D 1207	1SS302		
	C 1006,1007	CCSRCH331J50				

5	6	7	8	
Mark No.	Description	Part No.	Mark No.	Description
D 1208	UDZS5R1(B)	<b>MISCELLANEOUS</b>		
D 1209	UDZS16(B)	VR1321	CCP1392	
		T 1301	ATK1162	
D 1251	UDZS8R2(B)	T 1321	ATK1153	A
<b>MISCELLANEOUS</b>		<b>RESISTORS</b>		
L 1201–1203	BTH1134	R 1321,1322	RS1/10S2203F	
L 1204–1206	ATH1186	R 1328	RS1/16S5601F	
F 1201	CTF1449	R 1331	RAB4C472J	
K 1201	AKX1061	Other Resistors	RS1/16S###J	
KN1201–1207,1210–1217	ANK1841			
		<b>CAPACITORS</b>		
CN1201,1203	AKM1281	C 1301,1306,1326	CEHAT101M25	
CN1204	AKM1277	C 1302,1325	CKSYB105K25	B
CN1206	B8B-EH	C 1303	CKSRYB103K50	
		C 1304,1307,1323	CKSRYB104K16	
		C 1305	ACG1105	
<b>RESISTORS</b>				
R 1210,1226,1253,1254	RS1/10S100J	C 1321	ACH1361	
R 1212	ACN1166	C 1322	ACH1452	
R 1217,1232	RS1/10S0R0J	C 1324	CEHAT101M16	
R 1220,1237	ACN1168	C 1327	CKSRYB104K25	
R 1222	RS3LMF180J	C 1328	CEHAT221M25	
		All Resistors	RS1/16S###J	
Other Resistors	RS1/16S###J			
<b>CAPACITORS</b>		<b>60 Y DRIVE ASSY</b>		C
C 1201,1211–1213,1238	CKSRYF104Z50	<b>MISCELLANEOUS</b>		
C 1202,1231,1237	CKSYB105K25	2001ANH1639		
C 1203,1204	ACH1449	2002BMZ30P080FTC		
C 1207,1216,1218,1219	CKSRYB104K16	2003AEH1092		
C 1208,1214,1246	CEHAT470M16	2004ANG2907		
		2005ABA1364		
C 1209,1215,1217,1233	CEHAT470M25			
C 1210,1240,1244	CEHAT101M25	<b>[Y LOGIC BLOCK]</b>		
C 1221,1222	ACG1126	<b>SEMICONDUCTORS</b>		
C 1223,1224	ACH1453	IC 2001,2007	TC74ACT541FT	
C 1225–1230	ACE1180	IC 2003,2004	TC74ACT540FT	D
		IC 2005,2006	TC74VHC08FTS1	
C 1232,1245,1250,1251	CKSRYB104K16	D 2090,2091	1SS355	
C 1235	CEHAT2R2M2E			
C 1236	CKSRYB105K10			
C 1239	CCSRCH331J50			
C 1241–1243	CEHAT470M25			
		<b>MISCELLANEOUS</b>		
C 1252	CKSRYB104K25	K 2010,2014	AKX1061	
		VR 2010,2011	CCP1390	
		CN 2001	AKM1348	
<b>[X DD CON BLOCK]</b>				
<b>SEMICONDUCTORS</b>		<b>RESISTORS</b>		
IC 1321	MIP2E3DMU	R 2001,2003,2016,2022	RAB4C470J	E
IC 1322	PS2701A-1(L)	R 2002,2004	RAB4C101J	
IC 1327	TA76431FR	R 2005,2006,2017,2026	RAB4C472J	
Q 1301	2SD1898	R 2023	RAB4C470J	
Q 1302	2SC4081	R 2027	RAB4C472J	
		Other Resistors	RS1/16S###J	
Q 1331,1332	HN1C01FU			
D 1301,1324	D1FL40	<b>CAPACITORS</b>		
D 1302,1303,1325,1326	CRH01	C 2001,2009	CEHAT470M16	
D 1304	1SS301	C 2002,2004–2008	CKSRYB104K16	
D 1305	UDZS5R6(B)	C 2010,2011	CCSRCH331J50	F
D 1306,1307,1331	1SS355			
D 1321,1322	CRF03			
D 1323	U1ZB330			
D 1332	UDZS6R2(B)			
D 1333	UDZS12(B)			
		<b>[Y RESONANCE BLOCK]</b>		
		<b>SEMICONDUCTORS</b>		

**Mark No. Description****Part No.**

IC 2101,2104  
IC 2102  
IC 2103,2151  
IC 2181  
Q 2101

TND307TD  
PS9117  
AXF1159  
BA10393F  
2SC2412K

Q 2102,2103,2151,2152  
Q 2181  
D 2101  
D 2105,2154  
D 2110,2159

QS22  
2SC4081  
UDZS5R6(B)  
D1FL40  
1SS302

**MISCELLANEOUS**

L 2101,2151  
L 2102,2152

ATH1213  
ATH1215

**RESISTORS**

R 2109,2118,2152,2161  
R 2113,2156  
R 2114,2115,2157,2158  
R 2116,2117,2159,2160  
R 2121

RS1/10S2R2J  
ACN1174  
RS3LMF100J  
RS1/10S104J  
RS1/16S3300F

R 2181,2184  
R 2182,2185  
R 2186,2187  
Other Resistors

RS1/10S1003F  
RS1/16S5601F  
RS1/16S6801F  
RS1/16S###J

**CAPACITORS**

C 2101,2181-2184  
C 2102,2113,2162,2164  
C 2103,2114  
C 2104,2117,2151,2163  
C 2107,2108,2154,2155

CKSRYB104K16  
CEHAT470M25  
CKSRYF104Z50  
CKSYB105K25  
CCG1186

C 2115,2116,2160,2161  
C 2118-2121,2186-2189  
C 2185

ACG1112  
ACE1168  
CKSRYB105K10

**[Y SUS BLOCK]****SEMICONDUCTORS**

IC 2202,2221,2232,2242  
IC 2203,2211,2222,2231  
IC 2241,2252  
IC 2251  
IC 2271

PS9117  
TND307TD  
TND307TD  
TC7SH04FUS1  
TND301S

IC 2301,2302  
IC 2351  
IC 2380  
Q 2211  
Q 2221,2232,2242,2243

AXF1161  
PQ05DZ11  
PQ09DZ11  
2SK3325  
QS22

Q 2222,2231,2241,2352  
Q 2239,2271  
Q 2240  
Q 2251  
Q 2281-2283

2SC4081  
2SK3050  
2SC2412K  
QS22  
2SK3399

Q 2290  
Q 2291  
Q 2351  
D 2208,2221,2231,2241  
D 2222,2223,2232,2233

DTC123TKA  
DTC143EK  
HN1B04FU  
UDZS5R6(B)  
CRH01

D 2242,2243,2281,2282  
D 2251

CRH01  
UDZS5R1(B)

**Mark No. Description****Part No.**

D 2271  
D 2272  
D 2283,2289

1SS301  
UDZS16(B)  
UDZS9R1(B)

D 2290  
D 2351,2380

UDZS8R2(B)  
1SS355

**MISCELLANEOUS**

L 2351,2353,2354  
L 2352,2355,2356  
F 2301-2330  
F 2351  
K 2301,2351

BTH1134  
ATH1186  
ATX1062  
CTF1449  
AKX1061

KN 2202-2208,2301-2307  
CN 2351  
CN 2353  
CN 2354,2356

ANK1841  
B9B-EH  
AKM1277  
AKM1281

**RESISTORS**

R 2202,2206  
R 2211,2214,2215  
R 2274,2275  
R 2287-2293  
R 2301,2303,2307,2308

RS3LMF102J  
RS3LMF5R6J  
RS3LMF561J  
ACN1239  
RS1/10S100J

R 2302,2304  
R 2305,2311  
R 2351  
Other Resistors

RS1/10S0R0J  
ACN1168  
ACN1162  
RS1/16S###J

**CAPACITORS**

C 2211,2223,2233,2243  
C 2212,2272  
C 2221,2231,2241,2253  
C 2222,2232,2242,2290  
C 2251

CEHAT470M25  
CKSRYF104Z50  
CKSYB105K25  
CKSRYB104K16  
CCSRCH331J50

C 2252,2362  
C 2256,2271,2291,2352  
C 2273,2281  
C 2284,2286  
C 2292

CKSRYB105K10  
CEHAT470M25  
CEHAT2R2M2E  
ACE1163  
CKSYB105K25

C 2299  
C 2301,2305  
C 2302-2304,2306-2308  
C 2309,2310  
C 2351,2353,2361,2363

CKSRYB104K25  
ACH1453  
ACE1180  
CCG1186  
CEHAT470M16

C 2354,2359,2364,2380  
C 2356,2357  
C 2358  
C 2360  
C 2367,2368

CKSRYB104K16  
ACH1449  
CEHAT101M10  
CKSRYB473K16  
CEHAT101M25

C 2369  
C 2381

CEHAT470M16  
CKSRYB104K16

**[Y SCAN BLOCK]****SEMICONDUCTORS**

IC 2401,2403,2409  
IC 2402,2407,2421,2490  
IC 2405,2406,2408,2410  
IC 2481,2482

TLP116  
TC74AC540FT  
PS9117  
PST3638UR

**MISCELLANEOUS**

5			6			7			8		
Mark No.	Description	Part No.	Mark No.	Description	Part No.	Mark No.	Description	Part No.	Mark No.	Description	Part No.
L 2401		BTH1136	C 2551		ACH1448						
L 2402,2403		BTH1134	C 2552		ACH1451						
F 2401,2402		ATX1062	C 2554		CEHAT101M16						A
CN 2401,2402		AKM1200									
<b>RESISTORS</b>											
R 2405,2417		RAB4C220J									
Other Resistors		RS1/16S###J									
<b>CAPACITORS</b>			<b>[Y DD CON BLOCK] SEMICONDUCTORS</b>								
C 2401,2407,2414		CEHAT101M10	IC 2601		PS2701A-1(L)						
C 2402,2403,2405		CKSRYB104K16	IC 2605,2657		TA76431FR						
C 2404,2411		ACH1413	IC 2651		MIP2E3DMU						
C 2408-2410,2412,2413		CKSRYB104K16	IC 2652,2654,2658		TLP181(P-GR)						B
C 2415,2420,2421		CKSRYB104K16	IC 2653		BA10358F						
C 2481,2482		CKSRYB102K50	Q 2601,2681		2SD1898						
<b>[Y VH DD CON BLOCK] SEMICONDUCTORS</b>			Q 2602		2SA1576A						
IC 2501,2551		MIP2E3DMU	Q 2603,2684		HN1C01FU						
IC 2502,2552		PS2701A-1(L)	Q 2604,2605,2685		DTC143EUA						
IC 2508,2557		TA76431FR	Q 2651		2SA2005						
IC 2553		BA10358F	Q 2652		2SA1163						
Q 2501		HN1C01FU	Q 2682,2683		2SC4081						
			D 2602,2651,2654,2656		CRH01						
Q 2551		2SC2412K	D 2603,2684		1SS301						
D 2501		U1ZB330	D 2604,2606,2658,2659		1SS355						C
D 2502		D1FL40	D 2607,2608		UDZS4R7(B)						
D 2503,2505,2555,2556		CRH01	D 2653		CRF03						
D 2504,2551,2552,2554		CRF03	D 2682,2683		CRH01						
			D 2685,2689		UDZS5R6(B)						
D 2506,2559		UDZS4R7(B)	D 2686-2688		1SS355						
D 2507		UDZS12(B)	D 2690		UDZS15(B)						
D 2558		1SS355									
<b>MISCELLANEOUS</b>			<b>MISCELLANEOUS</b>								
VR 2501		CCP1390	VR 2651		CCP1390						
VR 2551		CCP1392	T 2601		ATK1156						
T 2501		ATK1158	T 2651		ATK1163						D
T 2551		ATK1153	T 2681		ATK1162						
<b>RESISTORS</b>			<b>RESISTORS</b>								
R 2509		RAB4C472J	R 2610,2613,2662,2666		RS1/16S4701F						
R 2551,2554		RS1/10S2203F	R 2615		RAB4C472J						
R 2552		RS1/10S1803F	R 2651		RS1/10S4702F						
R 2557,2560		RS1/16S5601F	R 2653,2660		RS1/10S1501F						
R 2564		RS1/16S1002F	R 2654,2691		RS3LMF301J						
R 2565		RS1/16S2202F	R 2661		RS1/16S1002F						
R 2566		RS1/16S2702F	R 2667		RS1/16S4701F						E
R 2567		RS1/16S6801F	R 2668-2670,2690		RS1/10S224J						
R 2568-2570		RS1/10S224J	R 2694		RS1/16S5601F						
Other Resistors		RS1/16S###J	R 2698		RS1/16S6801F						
<b>CAPACITORS</b>			Other Resistors		RS1/16S###J						
C 2502,2507,2553,2561		CKSRYB104K16	<b>CAPACITORS</b>								
C 2503		CEHAT470M16	C 2602,2681,2686		CEHAT101M25						
C 2505,2555		CEHAT101M25	C 2603,2685		ACG1105						
C 2506		ACH1450	C 2604		CKSRYB102K50						
C 2508		CEHAT331M16	C 2605		CEHAT221M10						F
			C 2606,2607,2653,2684		CKSRYB104K16						
C 2509		CEHAT470M25									
C 2510		ACH1413	C 2652		ACH1449						
			C 2654		CEHAT101M16						

	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
A	C	2655,2660	CKSRYF104Z50
	C	2656,2657	CEHAT221M35
	C	2658	CKSRYB104K25
	C	2659	CKSRYB105K10
	C	2661	CCG1186
	C	2682	CKSYB105K25
	C	2683	CKSRYB103K50
	C	2687,2688	CKSRYB104K16



POWER SUPPLY UNIT

POWER SUPPLY UNIT has no service part.

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PDP-6071PU







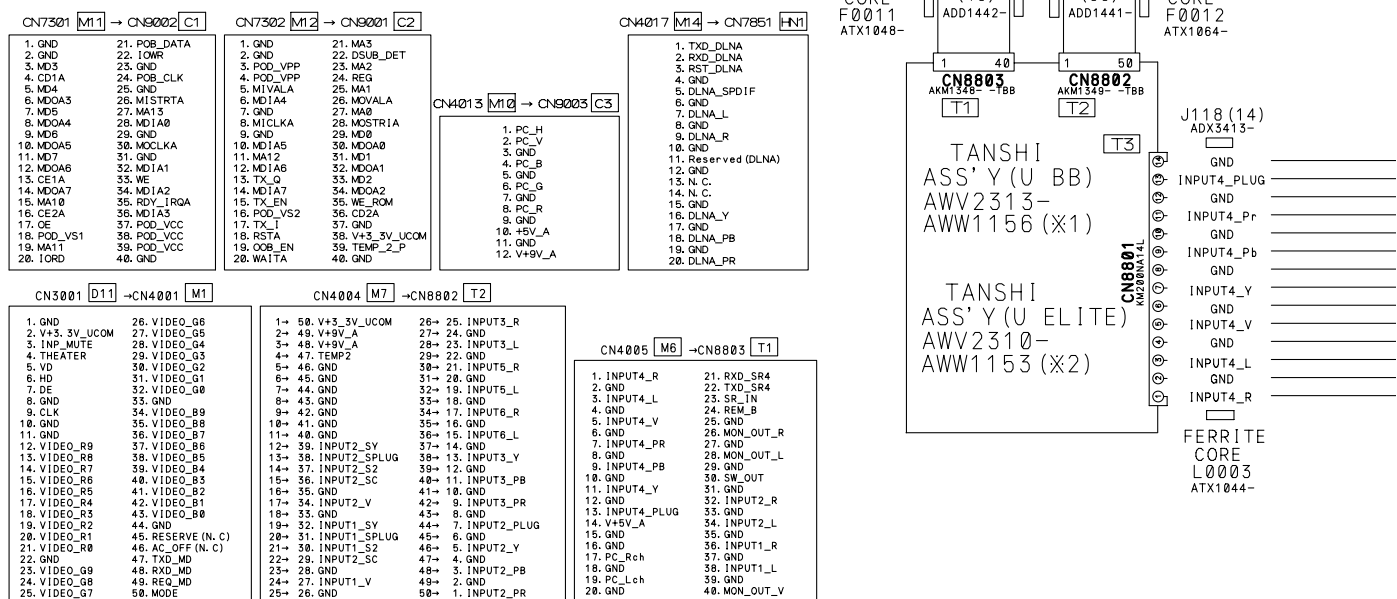
F

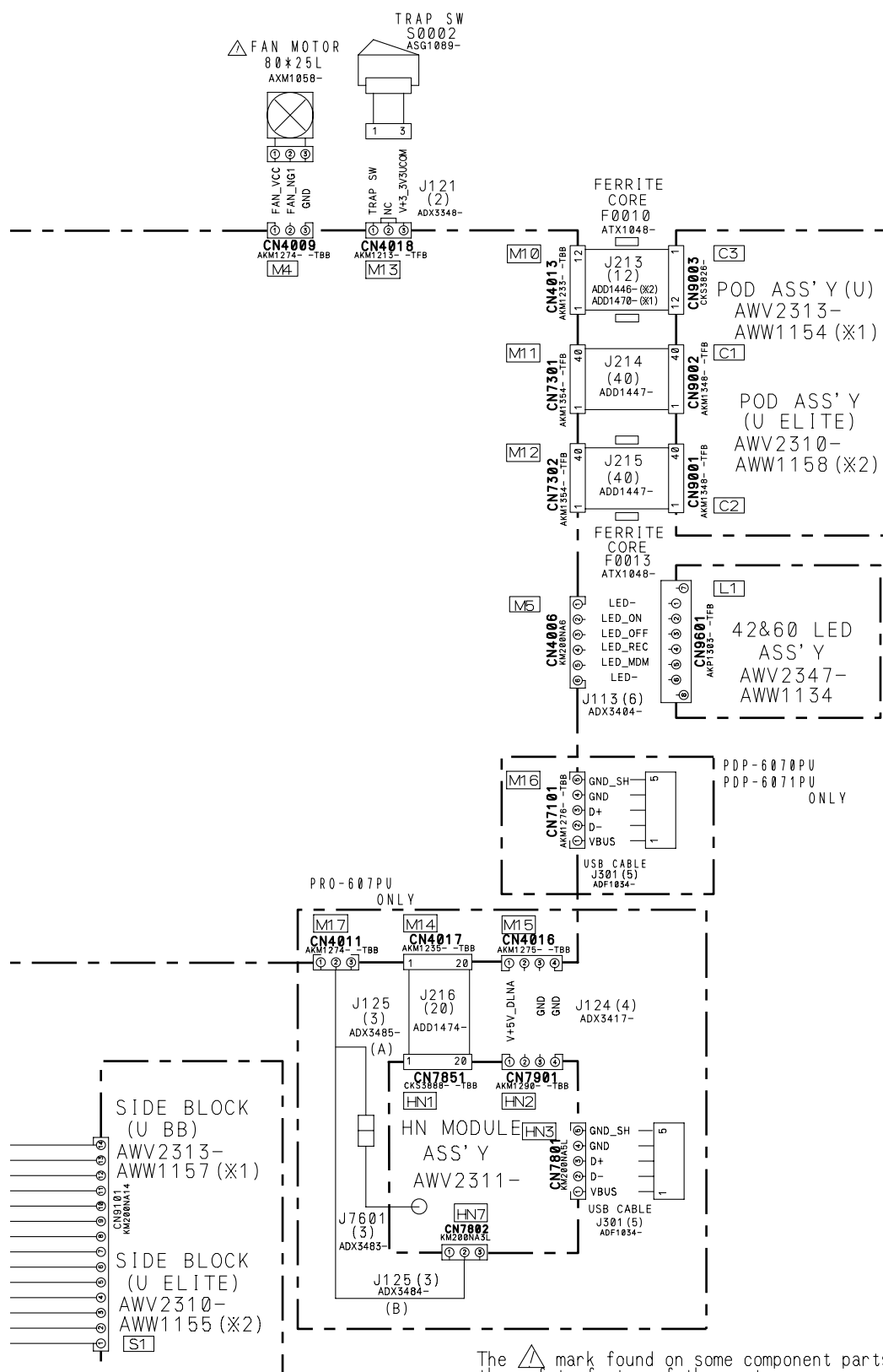
## 4


D

E

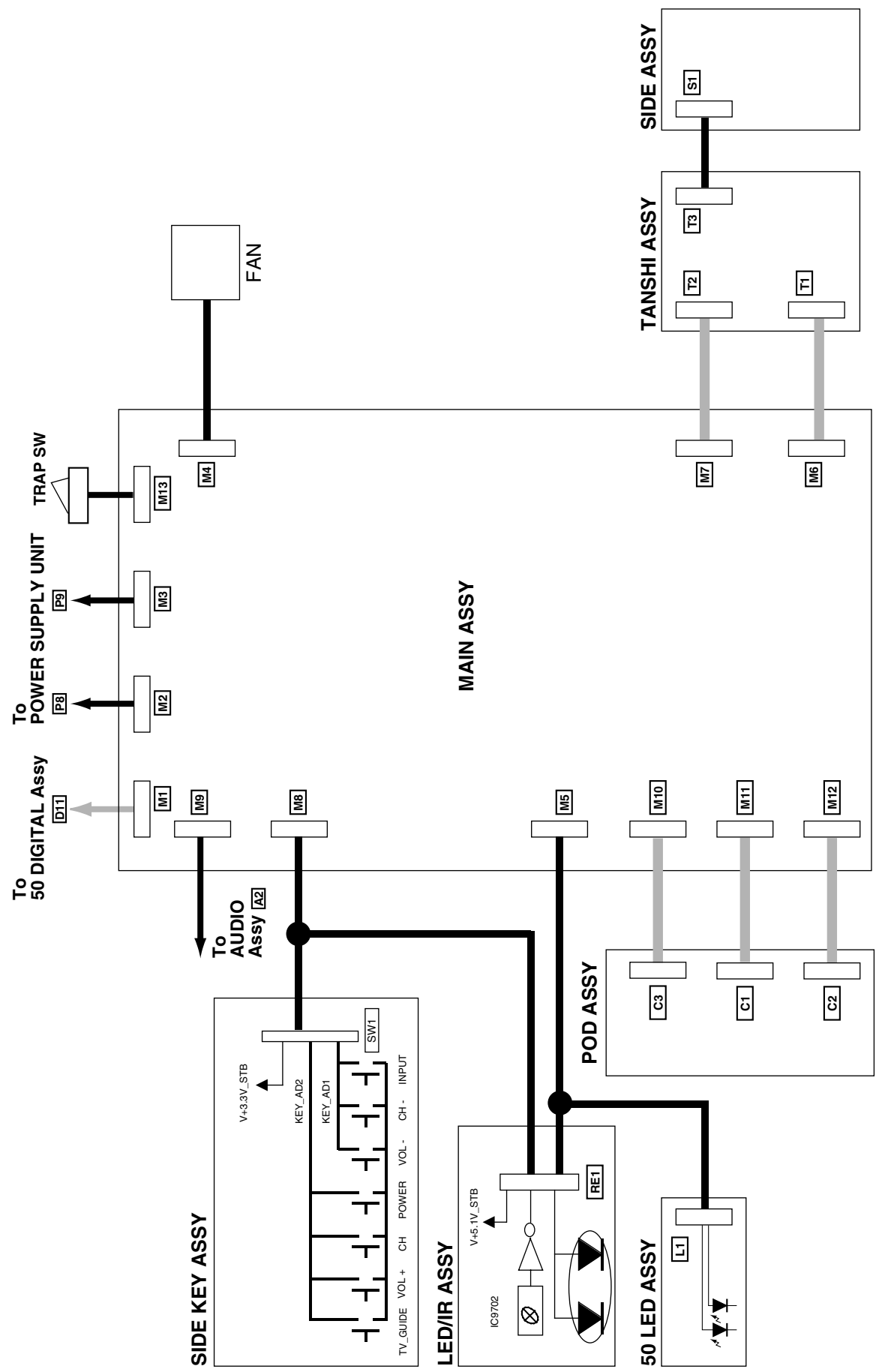
## CONNECTOR PIN ASSIGN





The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

4.3 OVERALL BLOCK DIAGRAM (2/2)





A

■ X Drive power supply map

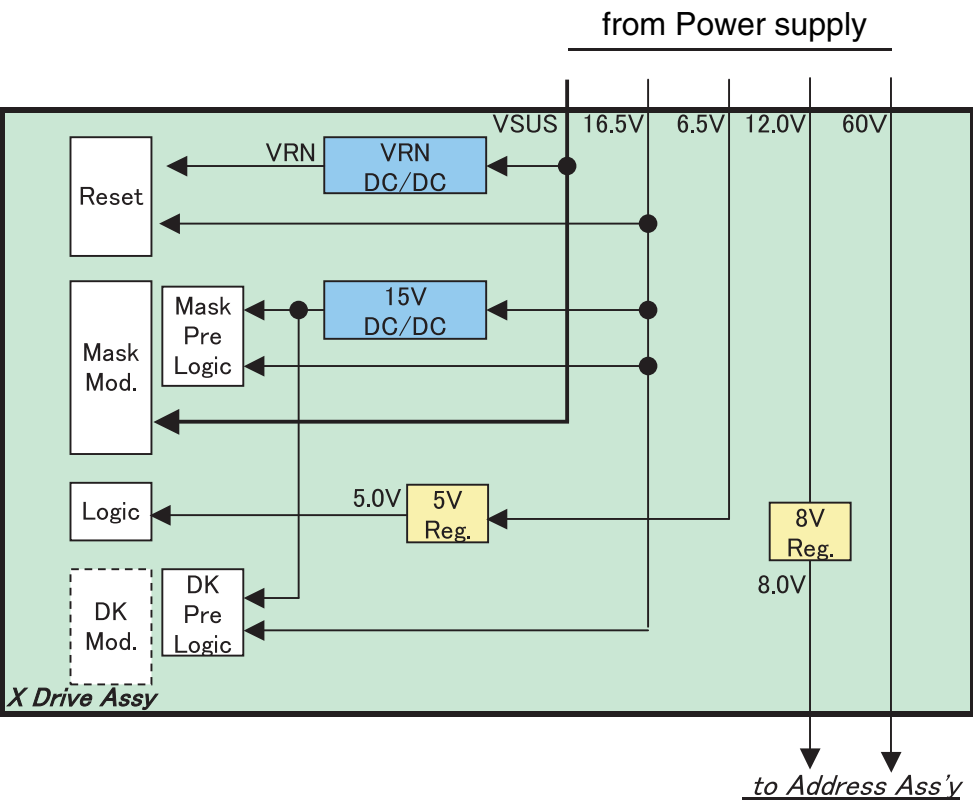
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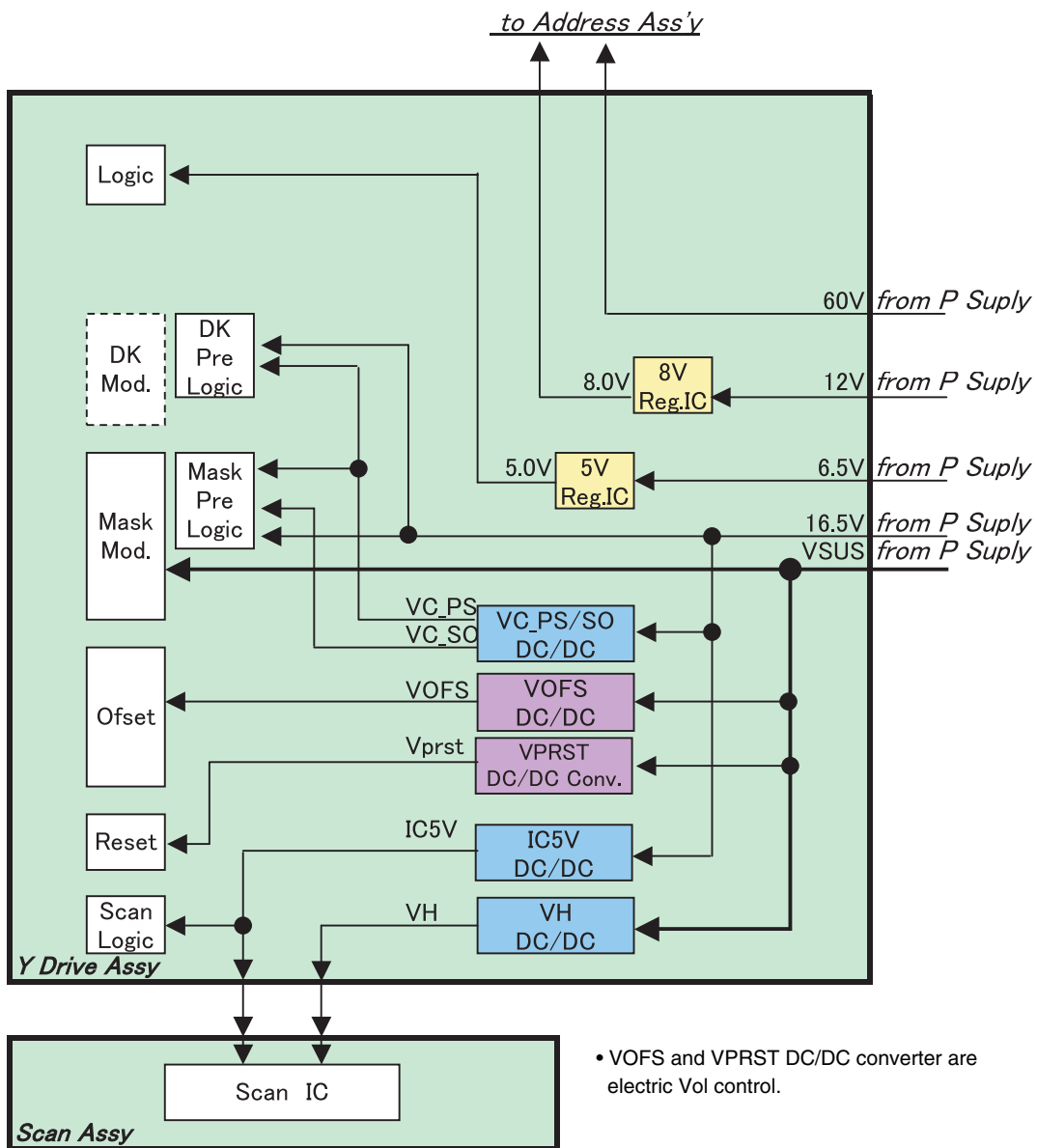


## 60 Y DRIVE ASSY



A

# Y Drive power supply map

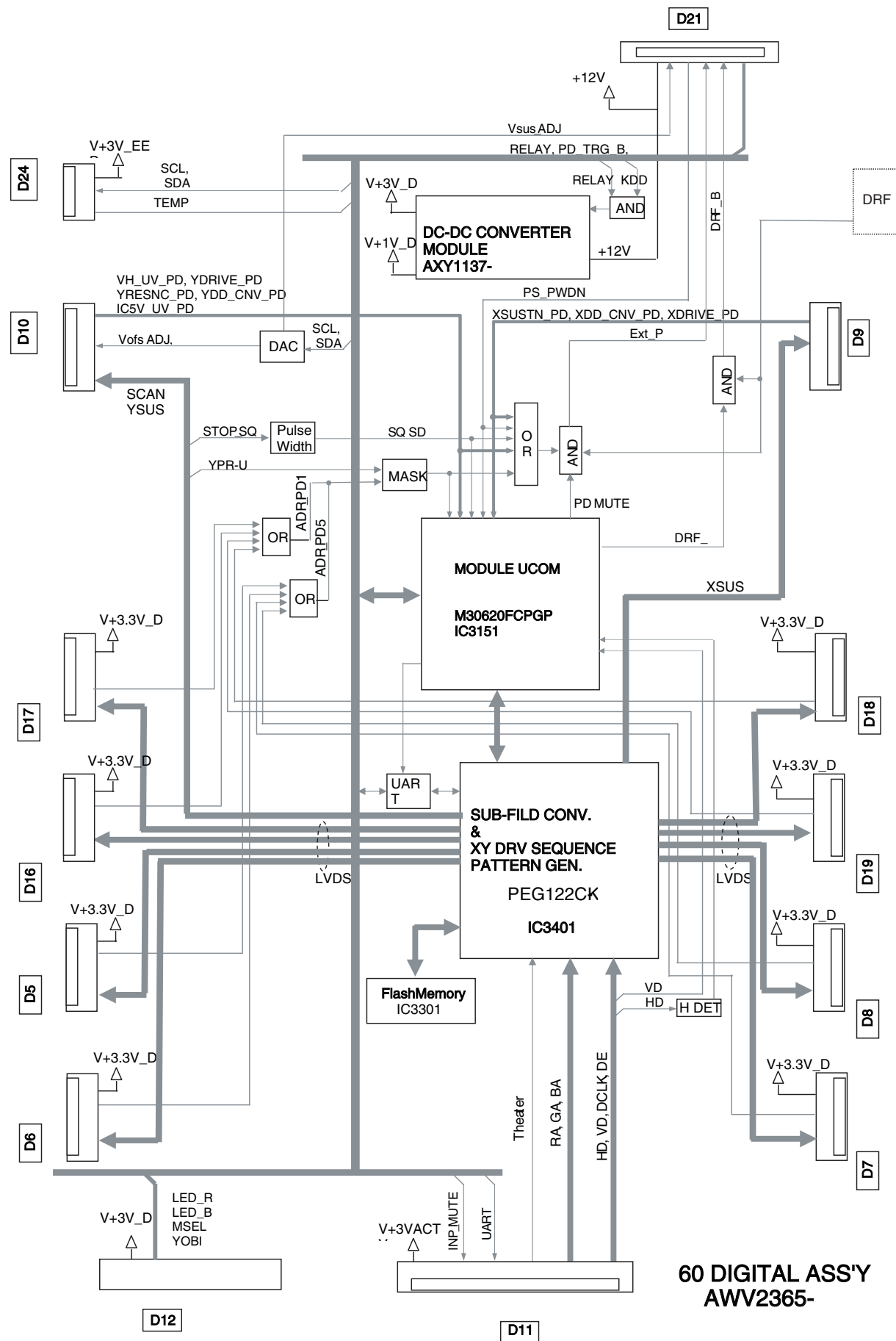


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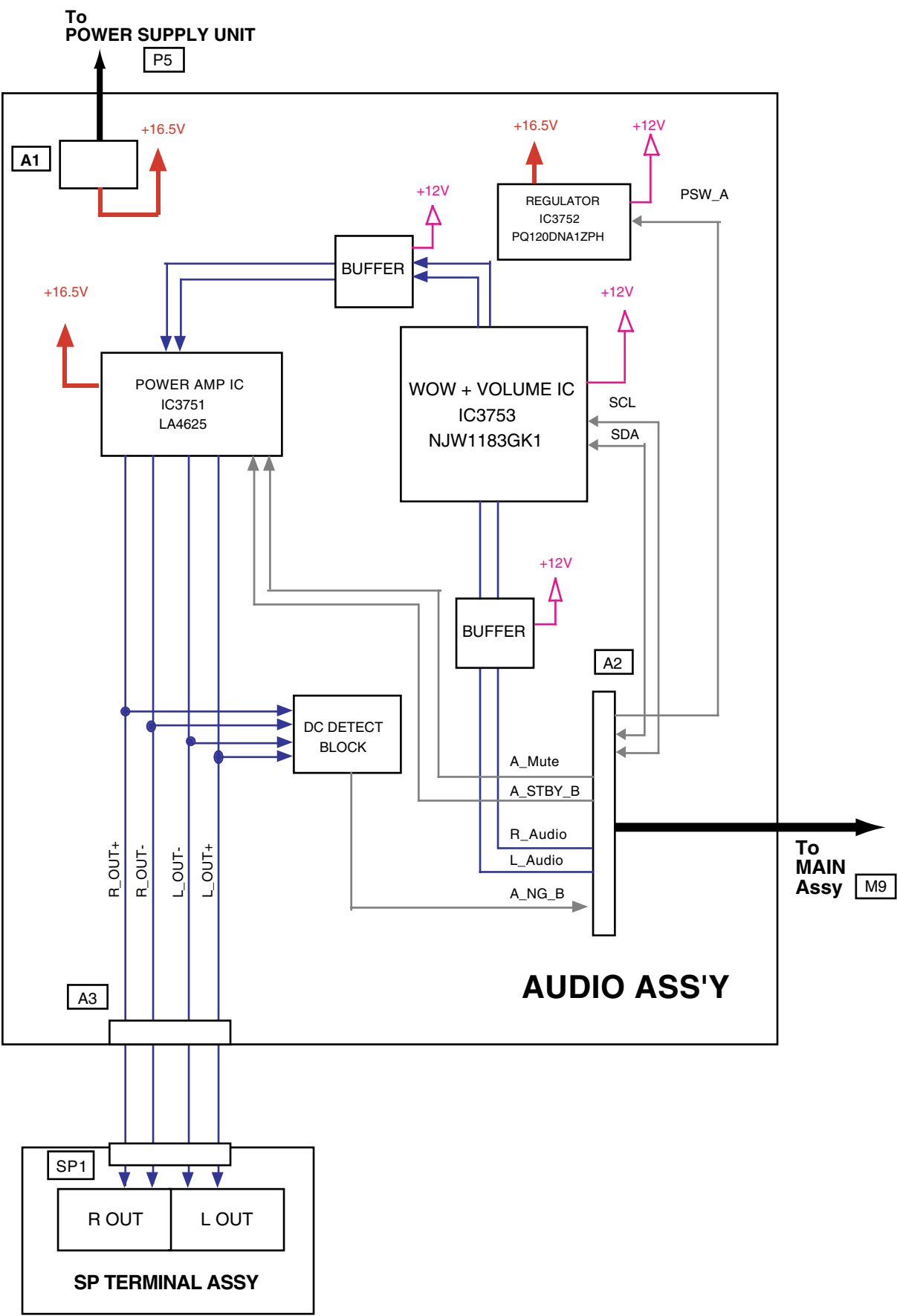
## 4.6 60 DIGITAL ASSY



60 DIGITAL ASSY  
AWW2365-

1 2 3 4

# 4.7 AUDIO ASSY



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PDP-6071PU

## 4





4.9 DTV BLOCK DIAGRAM

MTB American Digital Tuner Block R07SX (Block Diagram)

A

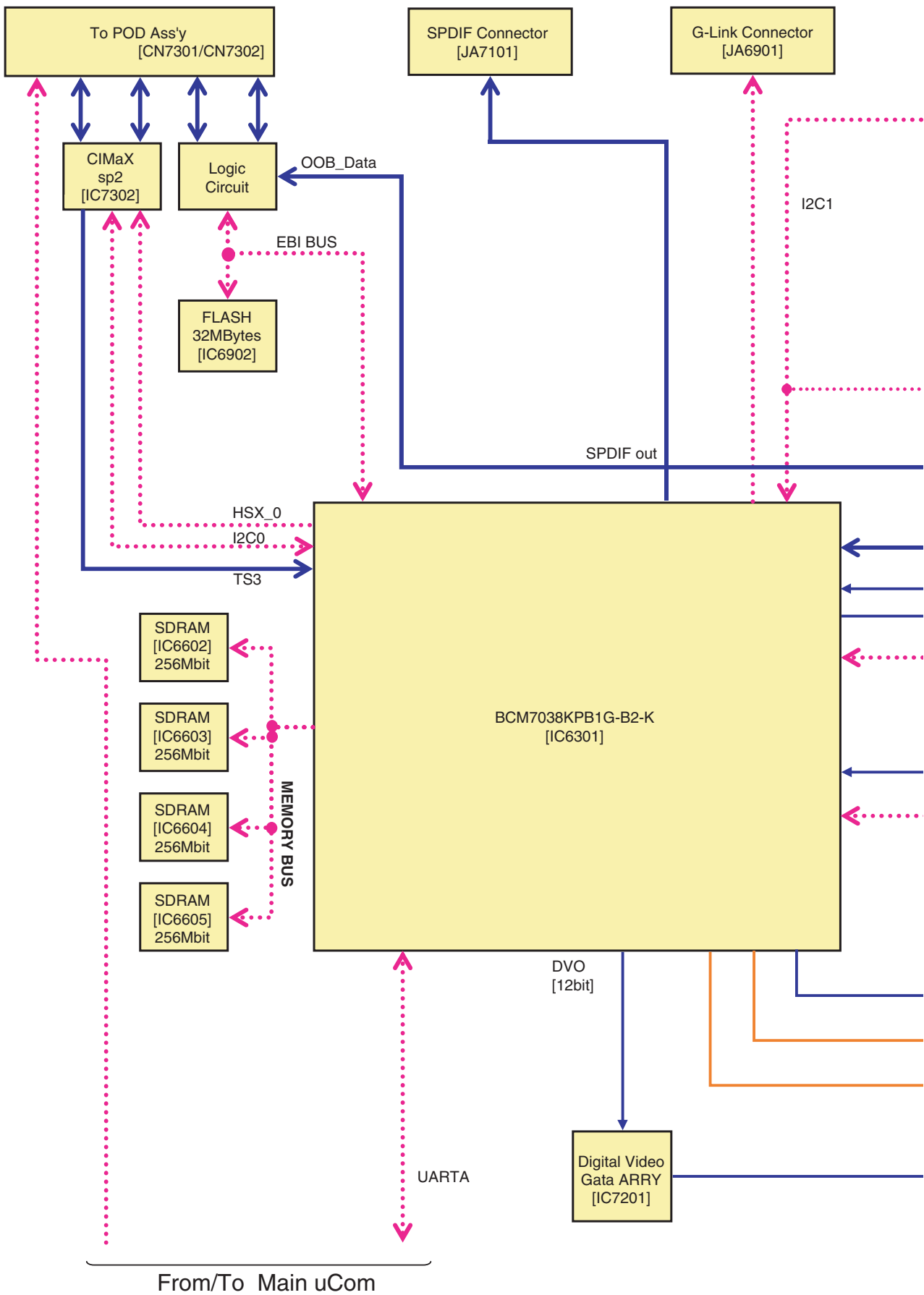
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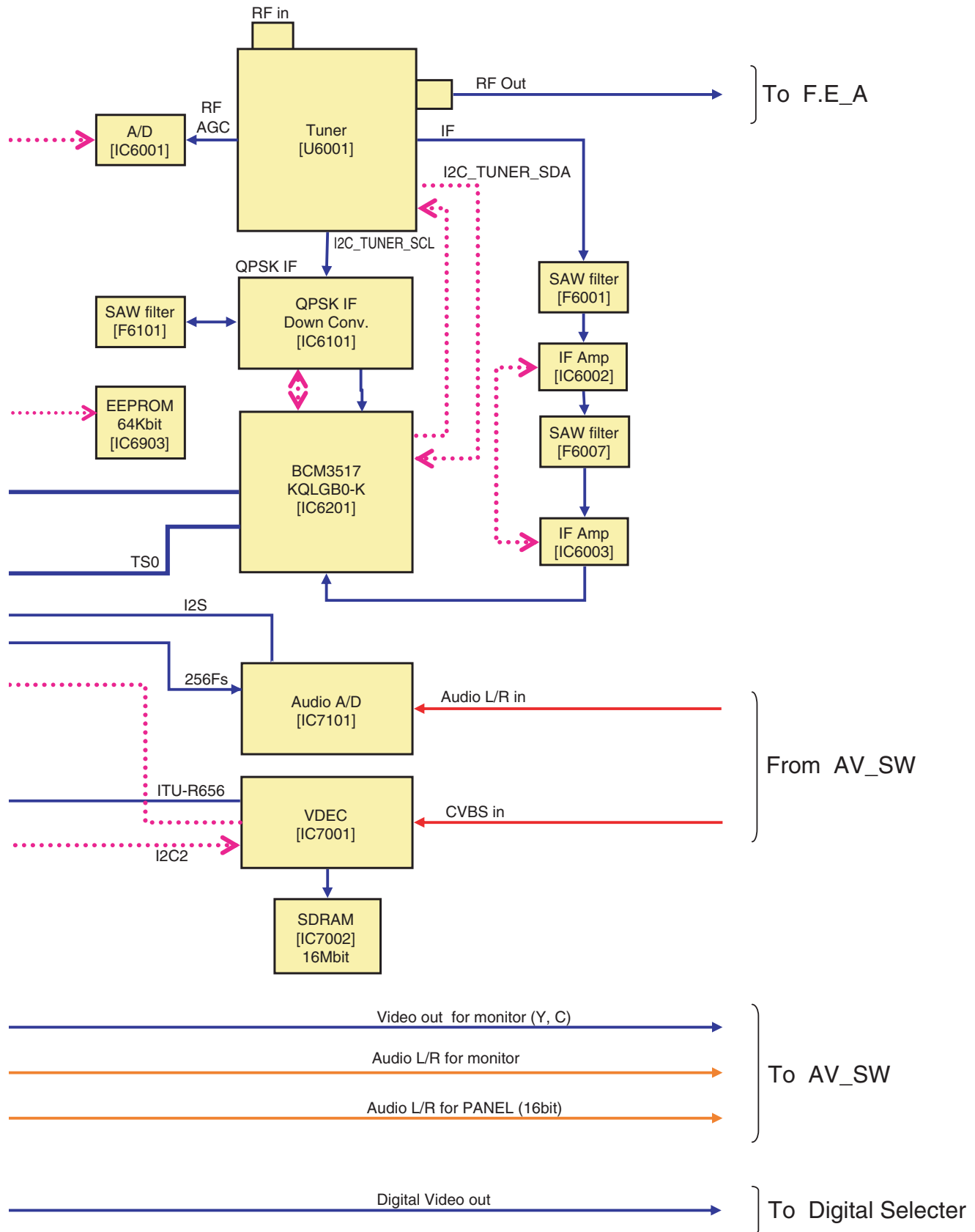
C

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1 2 3 4

# 4.10 FUKUGO BLOCK POWER LINE BLOCK DIAGRAM

A

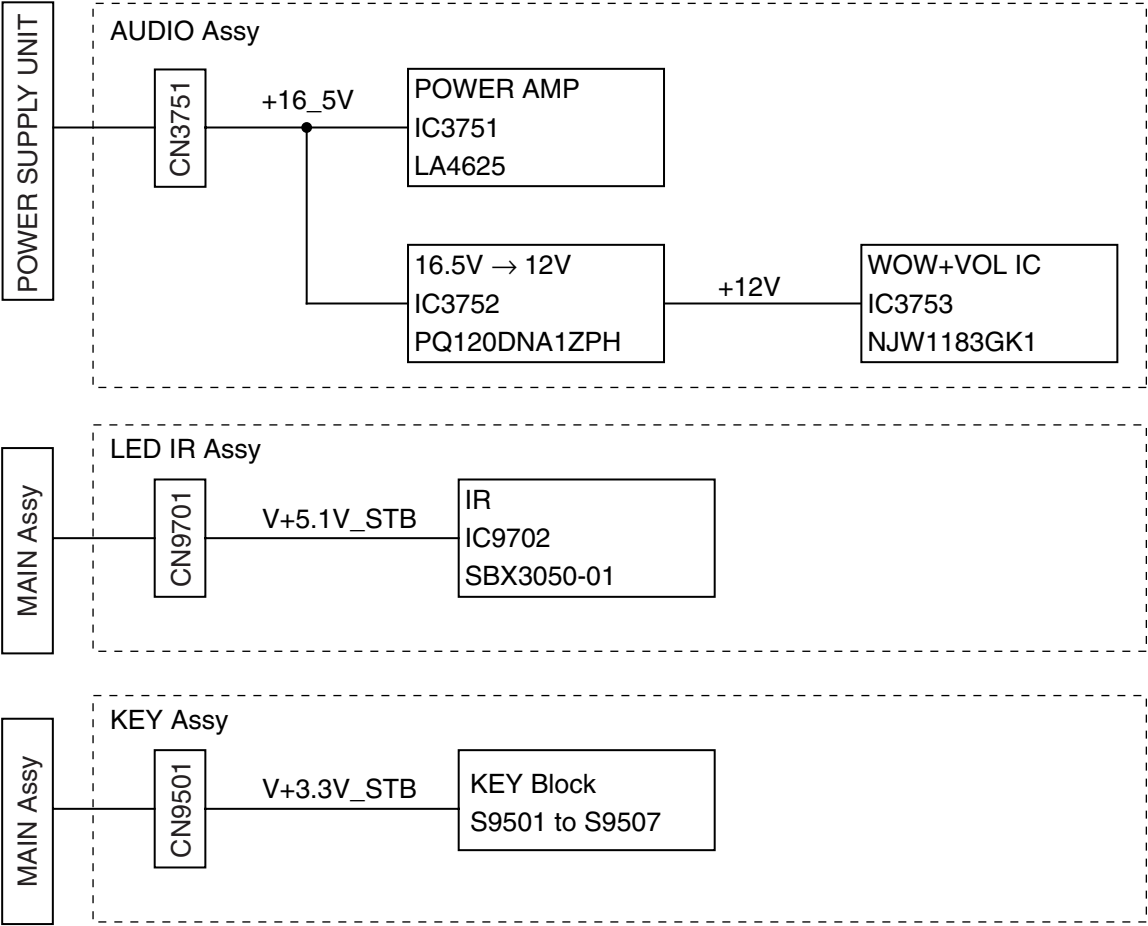
B

C

D

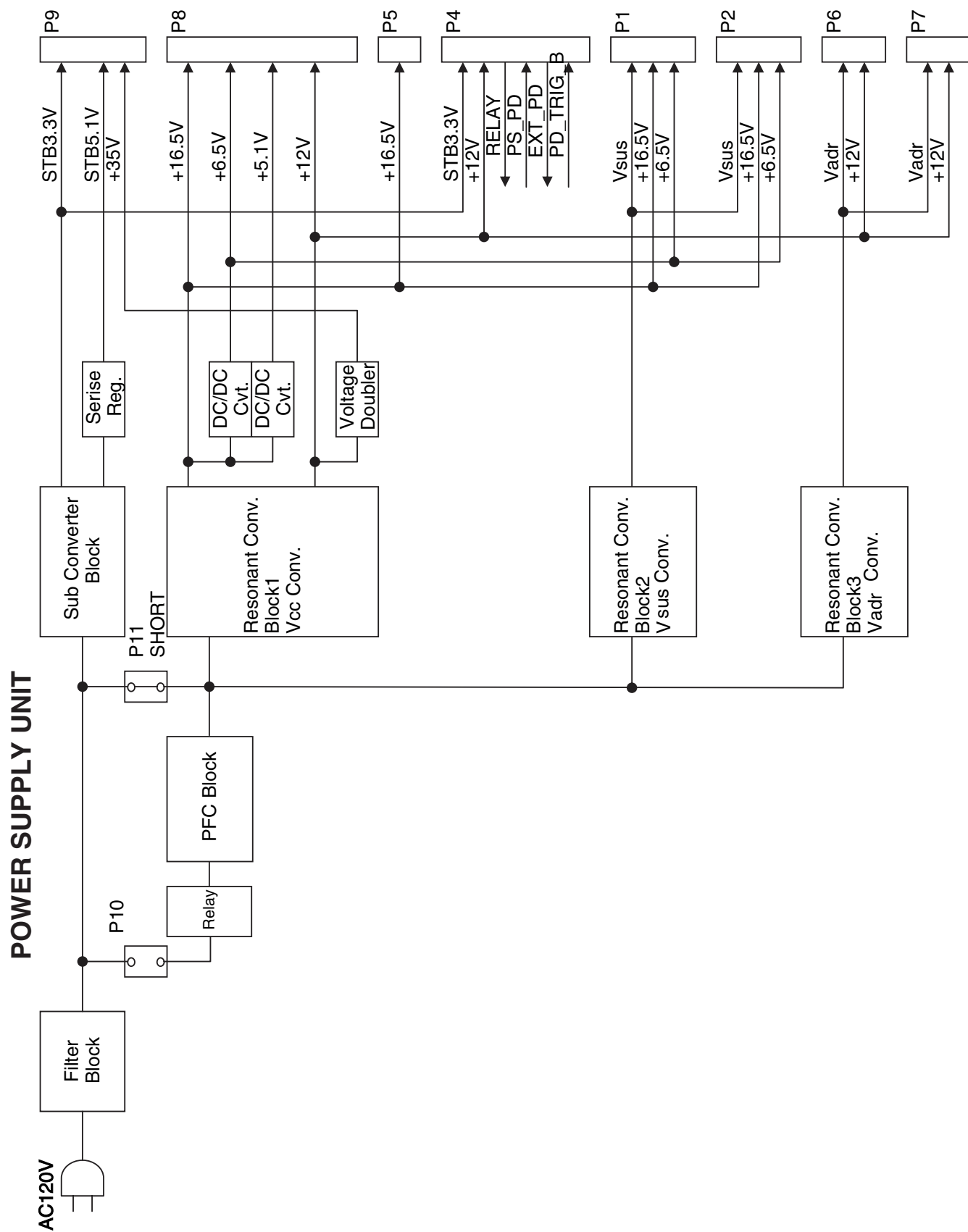
E

F





## 4.11 POWER SUPPLY UNIT



1234

## 4.12 VOLTAGES

A	TANSHI Assy			MTB MAIN Assy		
	No.	Name	Voltage (V)	No.	Name	Voltage (V)
	1	INPUT2_PR	2.5	50	INPUT2_PR	2.5
	2	GND	0	49	GND	0
	3	INPUT2_PB	2.5	48	INPUT2_PB	2.5
	4	GND	0	47	GND	0
	5	INPUT2_Y	2.5	46	INPUT2_Y	2.5
	6	GND	0	45	GND	0
	7	INPUT2_PLUG	2.5	44	INPUT2_PLUG	2.5
	8	GND	0	43	GND	0
	9	INPUT3_PR	2.5	42	INPUT3_PR	2.5
	10	GND	0	41	GND	0
B	11	INPUT3_PB	2.5	40	INPUT3_PB	2.5
	12	GND	0	39	GND	0
	13	INPUT3_Y	2.5	38	INPUT3_Y	2.5
	14	GND	0	37	GND	0
	15	INPUT6_L	4.6	36	INPUT6_L	4.6
	16	GND	0	35	GND	0
	17	INPUT6_R	4.6	34	INPUT6_R	4.6
	18	GND	0	33	GND	0
	19	INPUT5_L	4.6	32	INPUT5_L	4.6
	20	GND	0	31	GND	0
C	21	INPUT5_R	4.6	30	INPUT5_R	4.6
	22	GND	0	29	GND	0
	23	INPUT3_L	4.6	28	INPUT3_L	4.6
	24	GND	0	27	GND	0
	25	INPUT3_R	4.6	26	INPUT3_R	4.6
	26	GND	0	25	GND	0
	27	INPUT1_V	2.6	24	INPUT1_V	2.6
	28	GND	0	23	GND	0
	29	INPUT1_SC	2.1	22	INPUT1_SC	2.1
	30	INPUT1_S2	0.2	21	INPUT1_S2	0.2
D	31	INPUT1_SPLUG	4.9	20	INPUT1_SPLUG	4.9
	32	INPUT1_SY	2.6	19	INPUT1_SY	2.6
	33	GND	0	18	GND	0
	34	INPUT2_V	2.6	17	INPUT2_V	2.6
	35	GND	0	16	GND	0
	36	INPUT2_SC	2.1	15	INPUT2_SC	2.1
	37	INPUT2_S2	0.2	14	INPUT2_S2	0.2
	38	INPUT2_SPLUG	4.7	13	INPUT2_SPLUG	4.7
	39	INPUT2_SY	2.3	12	INPUT2_SY	2.3
	40	GND	0	11	GND	0
E	41	GND	0	10	GND	0
	42	GND	0	9	GND	0
	43	GND	0	8	GND	0
	44	GND	0	7	GND	0
	45	GND	0	6	GND	0
	46	GND	0	5	GND	0
	47	TEMP_2	2.2	4	TEMP_2	2.2
	48	V+9V_A	9.2	3	V+9V_A	9.2
	49	V+9V_A	9.2	2	V+9V_A	9.2
	50	V+3.3V_UCOM	3.3	1	V+3.3V_UCOM	3.3

TANSHI Assy			MTB MAIN Assy		
No.	Name	Voltage (V)	No.	Name	Voltage (V)
1	MON_OUT_V	1.5	40	MON_OUT_V	1.5
2	GND	0	39	GND	0
3	INPUT1_L	4.5	38	INPUT1_L	4.5
4	GND	0	37	GND	0
5	INPUT1_R	4.1	36	INPUT1_R	4.1
6	GND	0	35	GND	0
7	INPUT2_L	4.5	34	INPUT2_L	4.5
8	GND	0	33	GND	0
9	INPUT2_R	4.5	32	INPUT2_R	4.5
10	GND	0	31	GND	0
11	SW_OUT	0.5	30	SW_OUT	0.5
12	GND	0	29	GND	0
13	MON_OUT_L	0.7	28	MON_OUT_L	0.7
14	GND	0	27	GND	0
15	MON_OUT_R	1	26	MON_OUT_R	1
16	GND	0	25	GND	0
17	REM_B	4.8	24	REM_B	4.8
18	SR_IN	4.8	23	SR_IN	4.8
19	TXD_SR4	3.2	22	TXD_SR4	3.2
20	RXD_SR4	3.2	21	RXD_SR4	3.2
21	GND	0	20	GND	0
22	PC_LCH	4.6	19	PC_LCH	4.6
23	GND	0	18	GND	0
24	PC_RCH	4.6	17	PC_RCH	4.6
25	GND	0	16	GND	0
26	GND	0	15	GND	0
27	V+5V_A	4.9	14	V+5V_A	4.9
28	INPUT4_PLUG	4.9	13	INPUT4_PLUG	4.9
29	GND	0	12	GND	0
30	INPUT4_Y	2.5	11	INPUT4_Y	2.5
31	GND	0	10	GND	0
32	INPUT4_PB	2.5	9	INPUT4_PB	2.5
33	GND	0	8	GND	0
34	INPUT4_PR	2.5	7	INPUT4_PR	2.5
35	GND	0	6	GND	0
36	INPUT4_V	2.5	5	INPUT4_V	2.5
37	GND	0	4	GND	0
38	INPUT4_L	4.5	3	INPUT4_L	4.5
39	GND	0	2	GND	0
40	INPUT4_R	4.5	1	INPUT4_R	4.5

POD Assy			MTB MAIN Ass'y	
CN9002(AKM1348- -TBB)		Voltage (V)	CN7301(AKM1354- -TFB)	
No.	Name		Name	No.
1	GND	0	GND	1
2	GND	0	GND	2
3	MD3	0	MD3	3
4	CD1A	3.3	CD1A	4
5	MD4	3.3	MD4	5
6	MDOA3	0	MDOA3	6
7	MD5	0	MD5	7
8	MDOA4	0	MDOA4	8
9	MD6	3.3	MD6	9
10	MDOA5	0	MDOA5	10
11	MD7	3.3	MD7	11
12	MDOA6	0	MDOA6	12
13	CE1A	3.3	CE1A	13
14	MDOA7	0	MDOA7	14
15	MA10	0	MA10	15
16	CE2A	3.3	CE2A	16
17	OE	3.3	OE	17
18	POD_VS1	3.3	POD_VS1	18
19	MA11	0	MA11	19
20	IORD	3.3	IORD	20
21	POB_DATA	0	POB_DATA	21
22	IOWR	3.3	IOWR	22
23	GND	0	GND	23
24	POB_CLK	3.3	POB_CLK	24
25	GND	0	GND	25
26	MISTRTA	0	MISTRTA	26
27	MA13	3.3	MA13	27
28	MDIA0	0	MDIA0	28
29	GND	0	GND	29
30	MOCLKA	0	MOCLKA	30
31	GND	0	GND	31
32	MDIA1	0	MDIA1	32
33	WE	3.3	WE	33
34	MDIA2	0	MDIA2	34
35	RDY/IRQA	3.3	RDY/IRQA	35
36	MDIA3	0	MDIA3	36
37	VCC	3.3	VCC	37
38	VCC	3.3	VCC	38
39	VCC	3.3	VCC	39
40	GND	0	GND	40

POD Assy			MTB MAIN Assy	
CN9001(AKM1348- -TBB)		Voltage (V)	CN7302(AKM1354- -TFB)	
No.	Name		Name	No.
1	GND	0	GND	1
2	GND	0	GND	2
3	VPP	3.3	VPP	3
4	VPP	3.3	VPP	4
5	MIVALA	0	MIVALA	5
6	MDIA4	0	MDIA4	6
7	GND	0	GND	7
8	MICLKA	0	MICLKA	8
9	GND	0	GND	9
10	MDIA5	0	MDIA5	10
11	MA12	0	MA12	11
12	MDIA6	0	MDIA6	12
13	TX_Q	0	TX_Q	13
14	MDIA7	0	MDIA7	14
15	TX_EN	0	TX_EN	15
16	POD_VS2	3.3	POD_VS2	16
17	YX_I	3.3	YX_I	17
18	RSTA	0	RSTA	18
19	OOB_EN	0	OOB_EN	19
20	WAITA	3.3	WAITA	20
21	MA3	0	MA3	21
22	DSUB_DET	0	DSUB_DET	22
23	MA2	0	MA2	23
24	REG	3.3	REG	24
25	MA1	3.3	MA1	25
26	MOVALA	0	MOVALA	26
27	MA0	0	MA0	27
28	MOSTRTA	0	MOSTRTA	28
29	MDO	0	MDO	29
30	MDOA0	0	MDOA0	30
31	MD1	0	MD1	31
32	MDOA1	3.3	MDOA1	32
33	MD2	3.3	MD2	33
34	MDOA2	0	MDOA2	34
35	WE_ROM	0	WE_ROM	35
36	CD2A	3.3	CD2A	36
37	GND	0	GND	37
38	V+3.3V_UCOM	3.4	V+3.3V_UCOM	38
39	TEMP2_P	2.2	TEMP2_P	39
40	GND	0	GND	40

POD Assy			MTB MAIN Assy	
CN9003(CKS3826-)		Voltage (V)	CN4013(AKM1233- -TBB)	
No.	Name		Name	No.
12	PC_H	0	PC_H	12
11	PC_V	0	PC_V	11
10	GND	0	GND	10
9	PC_B	2.4*	PC_B	9
8	GND	0	GND	8
7	PC_G	2.4*	PC_G	7
6	GND	0	GND	6
5	PC_R	2.4*	PC_R	5
4	GND	0	GND	4
3	V+5V_A	5	V+5V_A	3
2	GND	0	GND	2
1	V+9V_A	9.2	V+9V_A	1

\* When PC signal is not inputted.

## AUDIO Assy

## MTB MAIN Assy

CN3752(KM200NA11)			CN4007(KM200NA11)		
No.	Name	Voltage (V)	Name	No.	
11	PSW_A	2.8	PSW_A	11	
10	SDA_AU	3.4	SDA_AU	10	
9	SCL_AU	3.4	SCL_AU	9	
8	A_MUTE	0	A_MUTE	8	
7	A_STBY_B	3.3	A_STBY_B	7	
6	GND	0	GND	6	
5	AUDIO_R	0	AUDIO_R	5	
4	GND	0	GND	4	
3	AUDIO_L	0	AUDIO_L	3	
2	GND	0	GND	2	
1	A_NG_B	2.8	A_NG_B	1	

## LED IR Assy/KEY Assy

## MTB MAIN Assy

CN9701 / CN9501			Voltage (V)	CN4010(KM200NA7)	
No.	Connector	Name		Name	No.
2	CN9701	REM	0	REM	7
6	CN9701	GND	0	GND	6
1	CN9701	V+5.1V_STB	5	V+5.1V_STB	5
4	CN9501	V+3.3V_STB	3.4	V+3.3V_STB	4
3	CN9501	KEY_AD1	3.4	KEY_AD1	3
2	CN9501	KEY_AD2	3.4	KEY_AD2	2
1	CN9501	GND	0	GND	1

## 50 LED Assy/LED IR Assy

## MTB MAIN Assy

CN9601 / CN9701			Voltage (V)	CN4006(KM200NA6)	
No.	Connector	Name		Name	No.
1	CN9651	LED-	0.2	LED-	1
2	CN9651	LED_ON	3.4	LED_ON	2
3	CN9651	LED_OFF	0	LED_OFF	3
4	CN9701	LED_REC	0	LED_REC	4
5	CN9701	LED_MDM	0	LED_MDM	5
3	CN9701	LED-	0.2	LED-	6

## POWER SUPPLY UNIT

## MTB MAIN Assy

P8(B13B-PH-K-S)			CN4002(KM200NA13)	
No.	Name	Voltage (V)	Name	No.
1	V+6.5V	6.9	V+6.5V	1
2	GND	0	GND	2
3	V+12V	12.2	V+12V	3
4	GND	0	GND	4
5	V+16.5V	17.3	V+16.5V	5
6	GND	0	GND	6
7	V+5_1V	5.1	V+5_1V	7
8	V+5_1V	5.1	V+5_1V	8
9	V+5_1V	5.1	V+5_1V	9
10	V+5_1V	5.1	V+5_1V	10
11	GND	0	GND	11
12	GND	0	GND	12
13	GND	0	GND	13

## POWER SUPPLY UNIT

## MTB MAIN Assy

P9(B11B-PH-K-S)			CN4008(KM200NA11)	
No.	Name	Voltage (V)	Name	No.
1	M_SW_DET	3.2	M_SW_DET	1
2	AC_DET	2.9	AC_DET	2
3	N.C.	3.35	N.C.(RELAY)	3
4	GND-D	0	GND	4
5	STB3.3V	3.3	V+3.3V_STB	5
6	GND-D	0	GND	6
7	STBY5.1V	5.1	V+5.1V_STB	7
8	GND-D	0	GND	8
9	+35V	37.3	V+35V	9
10	GND-D	0	GND	10
11	US-SW	2.3	US-SW	11

## FAN

## MTB MAIN Assy

CN4009(AKM1274- -TBB)		
No.	Name	Voltage (V)
		7.7/11
		0
		0

## TRAP-SW

## MTB MAIN Assy

CN4018(AKM1213- -TFB)		
No.	Name	Voltage (V)
		3.3
		3.3
		3.3

## USB

## MTB MAIN Assy

CN7101(AKM1276- -TBB)		
No.	Name	Voltage (V)
		5.0
		0
		0
		0
		0

## 60 DIGITAL ASSY

### CN3001 (D11) ↔ MAIN ASSY CN4001 (M1)

Pin No.	Pin Name	I/O	Function	Voltage (V)	TP
1	GND	—	GND	—	—
2	V+3.3V_UCOM2	I	Power supply for module microcomputer	3.3	—
3	INP_MUTE	O	Video signal input shut out control signal	0	—
4	THEATER	I	Control signal for pure cinema	0 to 3.3	—
5	VD	I	Vertical synchronized signal	0 to 3.3	—
6	HD	I	Horizontal synchronized signal	0 to 3.3	—
7	DE	I	Data enable signal	0 to 3.3	—
8	GND	—	GND	—	—
9	CLK	I	Data clock signal	0 to 3.3	—
10	GND	—	GND	—	—
11	GND	—	GND	—	—
12	VIDEO_R9	I	10 bit video signal input (RED)	0 to 3.3	—
13	VIDEO_R8	I	10 bit video signal input (RED)	0 to 3.3	—
14	VIDEO_R7	I	10 bit video signal input (RED)	0 to 3.3	—
15	VIDEO_R6	I	10 bit video signal input (RED)	0 to 3.3	—
16	VIDEO_R5	I	10 bit video signal input (RED)	0 to 3.3	—
17	VIDEO_R4	I	10 bit video signal input (RED)	0 to 3.3	—
18	VIDEO_R3	I	10 bit video signal input (RED)	0 to 3.3	—
19	VIDEO_R2	I	10 bit video signal input (RED)	0 to 3.3	—
20	VIDEO_R1	I	10 bit video signal input (RED)	0 to 3.3	—
21	VIDEO_R0	I	10 bit video signal input (RED)	0 to 3.3	—
22	GND	—	GND	—	—
23	VIDEO_G9	I	10 bit video signal input (GREEN)	0 to 3.3	—
24	VIDEO_G8	I	10 bit video signal input (GREEN)	0 to 3.3	—
25	VIDEO_G7	I	10 bit video signal input (GREEN)	0 to 3.3	—
26	VIDEO_G6	I	10 bit video signal input (GREEN)	0 to 3.3	—
27	VIDEO_G5	I	10 bit video signal input (GREEN)	0 to 3.3	—
28	VIDEO_G4	I	10 bit video signal input (GREEN)	0 to 3.3	—
29	VIDEO_G3	I	10 bit video signal input (GREEN)	0 to 3.3	—
30	VIDEO_G2	I	10 bit video signal input (GREEN)	0 to 3.3	—
31	VIDEO_G1	I	10 bit video signal input (GREEN)	0 to 3.3	—
32	VIDEO_G0	I	10 bit video signal input (GREEN)	0 to 3.3	—
33	GND	—	GND	—	—
34	VIDEO_B9	I	10 bit video signal input (BLUE)	0 to 3.3	—
35	VIDEO_B8	I	10 bit video signal input (BLUE)	0 to 3.3	—
36	VIDEO_B7	I	10 bit video signal input (BLUE)	0 to 3.3	—
37	VIDEO_B6	I	10 bit video signal input (BLUE)	0 to 3.3	—
38	VIDEO_B5	I	10 bit video signal input (BLUE)	0 to 3.3	—
39	VIDEO_B4	I	10 bit video signal input (BLUE)	0 to 3.3	—
40	VIDEO_B3	I	10 bit video signal input (BLUE)	0 to 3.3	—
41	VIDEO_B2	I	10 bit video signal input (BLUE)	0 to 3.3	—
42	VIDEO_B1	I	10 bit video signal input (BLUE)	0 to 3.3	—
43	VIDEO_B0	I	10 bit video signal input (BLUE)	0 to 3.3	—
44	GND	—	GND	—	—
45	RESERVE (N.C.)	—	Reserve	—	—
46	AC_OFF (N.C.)	O	AC state input	—	—
47	TXD_MD	O	UART communication	3.3	—
48	RXD_MD	I	UART communication	3.3	—
49	REQ_MD	O	Communication demand to main system	0	—
50	MODE	O	Model distinction	0	—

**60 DIGITAL ASSY****60 ADDRESS L ASSY**

D3 : CN3601 (AKM1348)  
 D4 : CN3602 (AKM1348)  
 D5 : CN3603 (AKM1348)  
 D9 : CN3607 (AKM1348)  
 D10 : CN3608 (AKM1348)  
 D11 : CN3609 (AKM1348)



AD1 : CN1502 (AKM1348)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	40	GND
2	DIV0	0 or 3.3	DIV0	39	Output timing control signal output
3	DIV1	0 or 3.3	DIV1	38	Output timing control signal output
4	GND_D	0	GND_D	37	GND
5	+3_3V	3.3	+3_3V	36	+3.3V power supply
6	+3_3V	3.3	+3_3V	35	+3.3V power supply
7	GND_D	0	GND_D	34	GND
8	LVDSGND	0	LVDSGND	33	GND
9	NC	-	NC	32	Non-connection terminal
10	DP	1 ~ 1.4	DP	31	LVDS differential signal D+ output
11	DN	1 ~ 1.4	DN	30	LVDS differential signal D- output
12	NC	-	NC	29	Non-connection terminal
13	LVDSGND	0	LVDSGND	28	GND
14	NC	-	NC	27	Non-connection terminal
15	CLKP	1 ~ 1.4	CLKP	26	LVDS differential signal CLK+ output
16	CLKN	1 ~ 1.4	CLKN	25	LVDS differential signal CLK- output
17	NC	-	NC	24	Non-connection terminal
18	LVDSGND	0	LVDSGND	23	GND
19	NC	-	NC	22	Non-connection terminal
20	CP	1 ~ 1.4	CP	21	LVDS differential signal C+ output
21	CN	1 ~ 1.4	CN	20	LVDS differential signal C- output
22	NC	-	NC	19	Non-connection terminal
23	LVDSGND	0	LVDSGND	18	GND
24	NC	-	NC	17	Non-connection terminal
25	BP	1 ~ 1.4	BP	16	LVDS differential signal B+ output
26	BN	1 ~ 1.4	BN	15	LVDS differential signal B- output
27	NC	-	NC	14	Non-connection terminal
28	LVDSGND	0	LVDSGND	13	GND
29	NC	-	NC	12	Non-connection terminal
30	AP	1 ~ 1.4	AP	11	LVDS differential signal A+ output
31	AN	1 ~ 1.4	AN	10	LVDS differential signal A- output
32	NC	-	NC	9	Non-connection terminal
33	LVDSGND	0	LVDSGND	8	GND
34	GND_D	0	GND_D	7	GND
35	NC	-	NC	6	Non-connection terminal
36	NC	-	NC	5	Non-connection terminal
37	GND_D	0	GND_D	4	GND
38	GND_D	0	GND_D	3	GND
39	ADRPD	0	ADRPD	2	Address PD signal input
40	NC	-	NC	1	Non-connection terminal

**60 DIGITAL ASSY**

D6 : CN3604 (AKM1348)  
 D7 : CN3605 (AKM1348)  
 D8 : CN3606 (AKM1348)  
 D12 : CN3610 (AKM1348)  
 D13 : CN3611 (AKM1348)  
 D14 : CN3612 (AKM1348)

**60 ADDRESS S ASSY**

AD1 : CN1702 (AKM1348)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	40	GND
2	DIV0	0 or 3.3	DIV0	39	Output timing control signal output
3	DIV1	0 or 3.3	DIV1	38	Output timing control signal output
GND_D	37	GND			4 GND_D 0
5	+3_3V	3.3	+3_3V	36	+3.3V power supply
6	+3_3V	3.3	+3_3V	35	+3.3V power supply
7	GND_D	0	GND_D	34	GND
8	LVDSGND	0	LVDSGND	33	GND
9	NC	-	NC	32	Non-connection termial
10	DP	1 ~ 1.4	DP	31	LVDS differential signal D+ output
11	DN	1 ~ 1.4	DN 3	0	LVDS differential signal D- output
12	NC	-	NC	29	Non-connection termial
13	LVDSGND	0	LVDSGND	28	GND
14	NC	-	NC	27	Non-connection termial
15	CLKP	1 ~ 1.4	CLKP	26	LVDS differential signal CLK+ output
16	CLKN	1 ~ 1.4	CLKN	25	LVDS differential signal CLK- output
17	NC	-	NC	24	Non-connection termial
18	LVDSGND	0	LVDSGND	23	GND
19	NC	-	NC	22	Non-connection termial
20	CP	1 ~ 1.4	CP	21	LVDS differential signal C+ output
21	CN	1 ~ 1.4	CN	20	LVDS differential signal C- output
22	NC	-	NC	19	Non-connection termial
23	LVDSGND	0	LVDSGND	18	GND
24	NC	-	NC	17	Non-connection termial
25	BP	1 ~ 1.4	BP	16	LVDS differential signal B+ output
26	BN	1 ~ 1.4	BN	15	LVDS differential signal B- output
27	NC	-	NC	14	Non-connection termial
28	LVDSGND	0	LVDSGND 1	3	GND
29	NC	-	NC	12	Non-connection termial
30	AP	1 ~ 1.4	AP	11	LVDS differential signal A+ output
31	AN	1 ~ 1.4	AN	10	LVDS differential signal A- output
32	NC	-	NC	9	Non-connection termial
33	LVDSGND	0	LVDSGND	8	GND
34	GND_D	0	GND_D	7	GND
35	NC	-	NC	6	Non-connection termial
36	NC	-	NC	5	Non-connection termial
37	GND_D	0	GND_D	4	GND
38	GND_D	0	GND_D	3	GND
39	ADRPD	0	ADRPD	2	Address PD signal input
40	NC	-	NC	1	Non-connection termial

## 60 DIGITAL ASSY

## 60 X DRIVE ASSY

D16 : CN3613 (AKM1348)

X1: CN1001 (AKM1348)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	XDD_PD	0	XDD_PD	40	X DRIVE PD signal input
2	NC	-	NC	39	Non-connection termial
3	DGND	0	DGND	38	GND
4	XSUS-B	0~3.3	XSUS-B	37	X DRIVE control signal output
5	DGND	0	DGND	36	GND
6	XSUS-U	0~3.3	XSUS-U	35	X DRIVE control signal output
7	DGND	0	DGND	34	GND
8	XSUS-D	0~3.3	XSUS-D	33	X DRIVE control signal output
9	DGND	0	DGND	32	GND
10	XSUS-G	0~3.3	XSUS-G	31	X DRIVE control signal output
11	DGND	0	DGND	30	GND
12	XNR-D	0~3.3	XNR-D	29	X DRIVE control signal output
13	DGND	0	DGND	28	GND
14	XSUS-MSK	0~3.3	XSUS-MSK	27	X DRIVE control signal output
15	DGND	0	DGND	26	GND
16	SUS_MUTE	0~5.0	SUS_MUTE	25	X DRIVE mute signal input
17	DGND	0	DGND	24	GND
18	XDRV_PD	0	XDRV_PD	23	X DRIVE PD signal input
19	DGND	0	DGND	22	GND
20	XResv2	-	XResv2	21	X DRIVE control signal output (Reserve)
21	XResv3	-	XResv3	20	X DRIVE control signal output (Reserve)
22	XResv4	-	XResv4	19	X DRIVE control signal output (Reserve)
23	DGND	0	DGND	18	GND
24	NC	-	NC	17	Non-connection termial
25	NC	-	NC	16	Non-connection termial
26	NC	-	NC	15	Non-connection termial
27	NC	-	NC	14	Non-connection termial
28	NC	-	NC	13	Non-connection termial
29	NC	-	NC	12	Non-connection termial
30	NC	-	NC	11	Non-connection termial
31	NC	-	NC	10	Non-connection termial
32	NC	-	NC	9	Non-connection termial
33	NC	-	NC	8	Non-connection termial
34	NC	-	NC	7	Non-connection termial
35	NC	-	NC	6	Non-connection termial
36	NC	-	NC	5	Non-connection termial
37	NC	-	NC	4	Non-connection termial
38	DRF_SW	0~3.3	DRF_SW	3	DRIVE OFF signal input
39	NC	-	NC	2	Non-connection termial
40	XSUS_PD	0	XSUS_PD	1	X DRIVE PD signal input



60 DIGITAL ASSY			60 Y DRIVE ASSY		
D15 : CN3614 (AKM1348)			Y1: CN2001 (AKM1348)		
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	SCN5V_PD	0	SCN5V_PD	40	Y DRIVE PD signal input
2	NC	-	NC	39	Non-connection termial
3	CLK1	0~3.3	CLK1	38	SCAN control signal output
4	SI_H	0~3.3	SI_H	37	SCAN control signal output
5	SI_L	0~3.3	SI_L	36	SCAN control signal output
6	DGND	0	DGND	35	GND
7	CLR	0~3.3	CLR	34	SCAN control signal output
8	CLK2	0~3.3	CLK2	33	SCAN control signal output
9	DGND	0	DGND	32	GND
10	LE	0~3.3	LE	31	SCAN control signal output
11	OC2_U	0~3.3	OC2_U	30	SCAN control signal output
12	OC1	0~3.3	OC1	29	SCAN control signal output
13	DGND	0	DGND	28	GND
14	YSUS-B	0~3.3	YSUS-B	27	Y DRIVE control signal output
15	YSUS-U	0~3.3	YSUS-U	26	Y DRIVE control signal output
16	DGND	0	DGND	25	GND
17	YSUS-D	0~3.3	YSUS-D	24	Y DRIVE control signal output
18	YSUS-G	0~3.3	YSUS-G	23	Y DRIVE control signal output
19	DGND	0	DGND	22	GND
20	YPR-U	0~3.3	YPR-U	21	Y DRIVE control signal output
21	SUS_MUTE	0~5.0	SUS_MUTE	20	Y DRIVE mute signal output
22	DGND	0	DGND	19	GND
23	YSUS-MSK	0~3.3	YSUS-MSK	18	Y DRIVE control signal output
24	YNRST	0~3.3	YNRST	17	Y DRIVE control signal output
25	YRSV2	-	YRSV2	16	Y DRIVE control signal output (Reserve)
26	DGND	0	DGND	15	GND
27	YNOFS	0~3.3	YNOFS	14	Y DRIVE control signal output
28	YRSV3	-	YRSV3	13	Y DRIVE control signal output (Reserve)
29	YSOFT-D	0~3.3	YSOFT-D	12	Y DRIVE control signal output
30	OC2_D	0~3.3	OC2_D	11	SCAN control signal output
31	DGND	0	DGND	10	GND
32	VOFS_ADJ	0~3.3	VOFS_ADJ	9	Vofs offset adjustment signal output
33	VYPRST_ADJ	0~3.3	VYPRST_ADJ	8	Reset voltage adjustment signal output
34	DGND	0	DGND	7	GND
35	NC	-	NC	6	Non-connection termial
36	SCAN_PD	0	SCAN_PD	5	Y DRIVE PD signal input
37	YDD_PD	0	YDD_PD	4	Y DRIVE PD signal input
38	YSUS_PD	0	YSUS_PD	3	Y DRIVE PD signal input
39	NC	-	NC	2	Non-connection termial
40	YDRV_PD	0	YDRV_PD	1	Y DRIVE PD signal input

A

**60 Y DRIVE ASSY****60 ADDRESS L/S ASSY**

Y6: CN2354 (AKM1281)

AD2: CN1801 (AKM1291)

Y8: CN2356 (AKM1281)

AD2: CN1601 (AKM1291)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	1	GND
2	5V	5	5V	2	5V power supply
3	8V	8	8V	3	8V power supply
4	GND_ADR	0	GND_ADR	4	GND
5	+60V	60	+60V	5	60V power supply
6	+60V	60	+60V	1	60V power supply
7	GND_ADR	0	GND_ADR	2	GND
8	8V	8	8V	3	8V power supply
9	5V	5	5V	4	5V power supply
10	GND_D	0	GND_D	5	GND

B

**60 Y DRIVE ASSY****607 SCAN B ASSY**

Y2: CN2402 (AKM1200)

SB1: CN2901 (AKP1261)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	VH	130	VH	1	Power supply for VH
2	VH	130	VH	2	Power supply for VH
3	NC	-	NC	3	Non-connection termial
4	NC	-	NC	4	Non-connection termial
5	NC	-	NC	5	Non-connection termial
6	GNDH	-60 ~ 300	GNDH	6	GND(PSUS)
7	SI_H	-60 ~ 300	SI_H	7	SI_H signal
8	CLR	-60 ~ 300	CLR	8	CLR signal
9	OC2	-60 ~ 300	OC2	9	OC2 signal
10	OC1	-60 ~ 300	OC1	10	OC1 signal
11	CLK1	-60 ~ 300	CLK1	11	CLK1 signal
12	LE	-60 ~ 300	LE	12	LE signal
13	GNDH	-60 ~ 300	GNDH	13	GND(PSUS)
14	GNDH_R	-60 ~ 300	GNDH_R	14	GND(PSUS). Connector detection
15	IC5V	-60 ~ 300	IC5V	15	IC5V power supply

C

D

E

F

60 Y DRIVE ASSY			607 SCAN A ASSY		
Y3: CN2401 (AKM1200)			SA1: CN2801 (AKP1261)		
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	VH	130	VH	1	Power supply for VH
2	VH	130	VH	2	Power supply for VH
3	NC	-	NC	3	Non-connection termial
4	NC	-	NC	4	Non-connection termial
5	NC	-	NC	5	Non-connection termial
6	GNDH	-60 ~ 300	GNDH	6	GND(PSUS)
7	SI_L	-60 ~ 300	SI_L	7	SI_L signal
8	CLR	-60 ~ 300	CLR	8	CLR signal
9	OC2	-60 ~ 300	OC2	9	OC2 signal
10	OC1	-60 ~ 300	OC1	10	OC1 signal
11	CLK2	-60 ~ 300	CLK2	11	CLK2 signal
12	LE	-60 ~ 300	LE	12	LE signal
13	GNDH	-60 ~ 300	GNDH	13	GND(PSUS)
14	GNDH_R	-60 ~ 300	GNDH_R	14	GND(PSUS).Connector detection
15	IC5V	-60 ~ 300	IC5V	15	IC5V power supply

60 Y DRIVE ASSY			POWER SUPPLY UNIT		
Y4: CN2351 (B9B-EH)			P1: (B9B-EH)		
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	NC	-	NC	1	Non-connection termial
2	+16_5V	16.5	+16_5V	2	16.5V power supply
3	+6_5V	6.5	+6_5V	3	6.5V power supply
4	GND_D	0	GND_D	4	GND
5	GND_SUS	0	GND_SUS	5	GND
6	GND_SUS	0	GND_SUS	6	GND
7	NC	-	NC	7	Non-connection termial
8	VSUS	205	VSUS	8	VSUS power supply
9	VSUS	205	VSUS	9	VSUS power supply

60 Y DRIVE ASSY			POWER SUPPLY UNIT		
Y5 : CN2353 (AKM1277)			P7: (B7B-PH-K-S)		
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	1	60V power supply
2	+60V	60	+60V	2	60V power supply
3	NC	-	NC	3	Non-connection termial
4	GND_ADR	0	GND_ADR	4	GND
5	+12V	12	+12V	5	12V power supply
6	GND_D	0	GND_D	6	GND
			NC	7	Non-connection termial

60 X DRIVE ASSY			POWER SUPPLY UNIT		
X2: (CN1206 B8B-EH)			P2: (B8B-EH)		
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+16_5V	16.5	+16_5V	1	16.5V power supply
2	+6_5V	6.5	+6_5V	2	6.5V power supply
3	GND_D	0	GND_D	3	GND
4	GND_SUS	0	GND_SUS	4	GND
5	GND_SUS	0	GND_SUS	5	GND
6	NC	-	NC	6	Non-connection termial
7	VSUS	205	VSUS	7	VSUS power supply
8	VSUS	205	VSUS	8	VSUS power supply

**60 X DRIVE ASSY****POWER SUPPLY UNIT**

X5: CN1204 (AKM1277)

P6: (B6B-PH-K-S)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	1	60V power supply
2	+60V	60	+60V	2	60V power supply
3	NC	-	NC	3	Non-connection termial
4	GND_ADR	0	GND_ADR	4	GND
5	+12V	12	+12V	5	12V power supply
6	GND_D	0	GND_D	6	GND

**60 X DRIVE ASSY****60 ADDRESS L/S ASSY**

X3: CN1201 (AKM1281)

AD2: CN1601 (AKM1291)

X6: CN1203 (AKM1281)

AD2: CN1801 (AKM1291)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	1	GND
2	5V	5	5V	2	5V power supply
3	8V	8	8V	3	8V power supply
4	GND_ADR	0	GND_ADR	4	GND
5	+60V	60	+60V	5	60V power supply
6	+60V	60	+60V	1	60V power supply
7	GND_ADR	0	GND_ADR	2	GND
8	8V	8	8V	3	8V power supply
9	5V	5	5V	4	5V power supply
10	GND_D	0	GND_D	5	GND

**AUDIO ASSY CN3752 (A2) ↔ MAIN ASSY CN4007 (M9)**

Pin No.	Pin Name	I/O	Function	Remarks
1	A_NG_B	O	DC detection, disconnection of cable detection	L : Abnormal, H : Normal
2	GND	—	GND for small signal	—
3	AUDIO_L	I	Small signal L ch	—
4	GND	—	GND for small signal	—
5	AUDIO_R	I	Small signal R ch	—
6	GND	—	GND for small signal	—
7	A_STBY_B	I	MUTE ON/OFF signal for LA4625 IC internal circuit	L : Standby, H : ON
8	A_MUTE	I	MUTE ON/OFF signal for LA4625 IC external circuit	L : MUTE OFF, H : MUTE
9	SCL_AU	I	CLK of I2C for NJW1183GK1 IC	—
10	SDA_AU	I/O	DATA of I2C for NJW1183GK1 IC	—
11	PSW_A	I	ON/OFF switch for 12 V regulator IC	L : OFF, H : ON

**AUDIO ASSY CN3751 (A1) ↔ POWER SUPPLY UNIT (P5)**

Pin No.	Pin Name	I/O	Function	Remarks
1	+16.5V	—	Power supply (16.5 V) for LA4625 IC	—
2	GND_D	—	Return GND for LA4625 IC	—
3	GND_D	—	Return GND for LA4625 IC	—

**AUDIO ASSY CN3753 (A3) ↔ SP TERMINAL ASSY CN3901 (SP1)**

Pin No.	Pin Name	I/O	Function	Remarks
1	RH+	O	Tweeter output R+	—
2	RL+	O	Woofer output R+ (Speaker output R+)	—
3	RH-	O	Tweeter output R-	—
4	RL-	O	Woofer output R- (Speaker output R-)	—
5	LL+	O	Woofer output L+ (Speaker output L+)	—
6	LH+	O	Tweeter output L+	—
7	LL-	O	Woofer output L- (Speaker output L-)	—
8	LH-	O	Tweeter output L-	—

**SIDE KEY ASSY CN9501 (SW1) ↔ MAIN ASSY CN4010 (M8)**

Pin No.	Pin Name	I/O	Function	Remarks
1	GND	–	GND	–
2	KEY_AD2	O	KEY voltage 2	–
3	KEY_AD1	O	KEY voltage 1	–
4	V+3.3V_STB	–	Standby 3.3 V power supply	–

**50 LED ASSY CN9651 (L1) ↔ MAIN ASSY CN4006 (M5)**

Pin No.	Pin Name	I/O	Function	Remarks
1	LED–	–	LED signal return	–
2	LED_ON	I	LED control for power ON	H : LED_ON, L : LED_OFF
3	LED_OFF	I	LED control for standby	H : LED_ON, L : LED_OFF

**LED IR ASSY CN9701 (RE1) ↔ MAIN ASSY CN4010 (M8)**

Pin No.	Pin Name	I/O	Function	Remarks
1	V+5.1V_STB	–	Standby 5.1 V power supply	–
2	REM	O	Remote control signal	–
3	LED–	–	LED signal return	–
4	LED_REC	I	LED control for REC	H : LED_ON, L : LED_OFF
5	LED_MDM	I	–	–
6	GND	–	GND	–

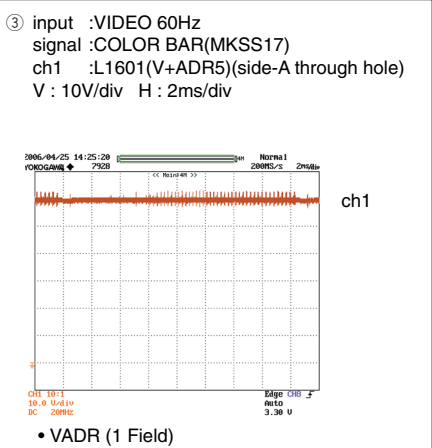
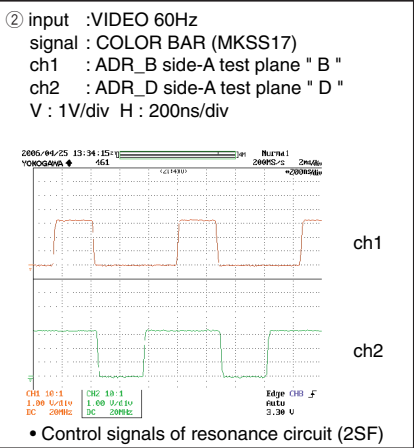
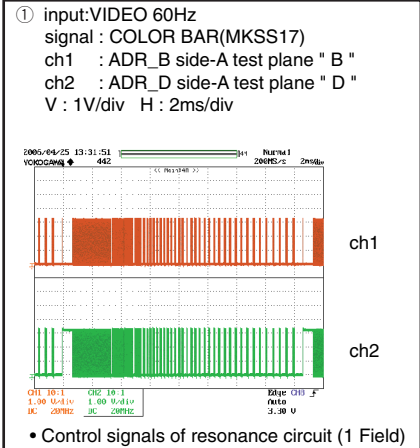
1 2 3 4

# 4.13 WAVEFORMS

● 60 ADDRESS ASSY

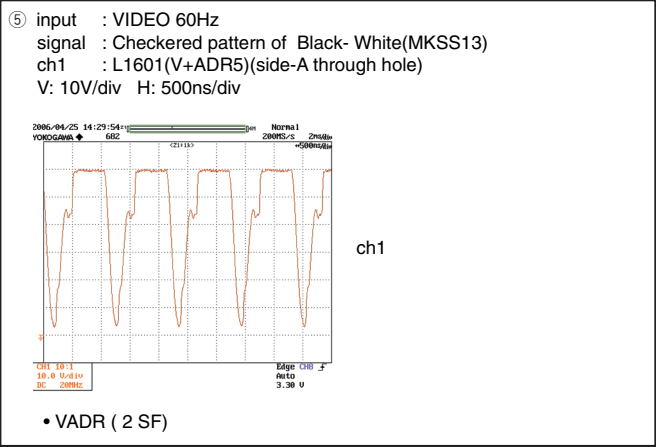
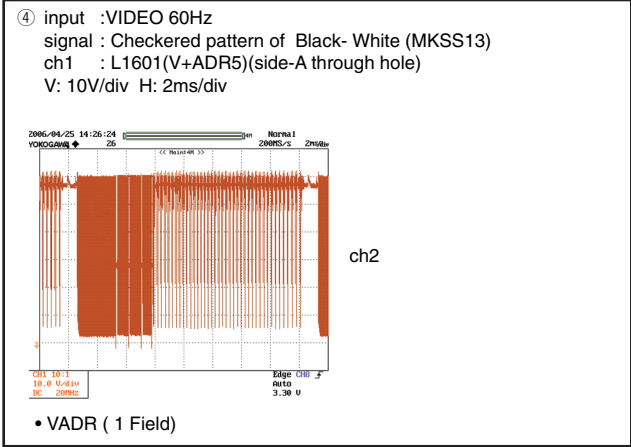
• ADR RESONANCE BLOCK

A



B

C



D

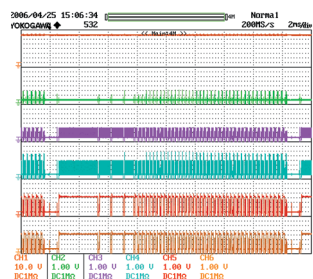
E

F

## ● 60 ADDRESS ASSY

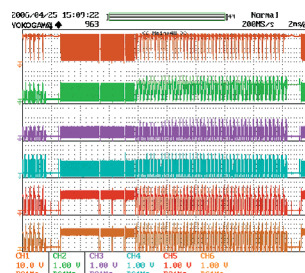
### • ADR LOGIC BLOCK

① input: VIDEO 60Hz  
 signal : COLOR BAR(MKSS17)  
 ch1 : L1601(V+ADR5) (side-A through hole)  
 V : 10V/div H : 2ms/div  
 ch2 : IC1501 25pin (R\_E) side-A test plane "R\_E"  
 V : 1V/div H : 2ms/div  
 ch3 : IC1501 36pin (CLK) side-A test plane "CLK1"  
 V : 1V/div H : 2ms/div  
 ch4 : IC1501 29pin (LE\_E) side-A test plane "LE\_E"  
 V : 1V/div H : 2ms/div  
 ch5 : IC1501 43pin (HBLK) side-A test plane "HBLK"  
 V : 1V/div H : 2ms/div  
 ch6 : IC1501 42pin (LBLK) side-A test plane "LBLK"  
 V : 1V/div H : 2ms/div



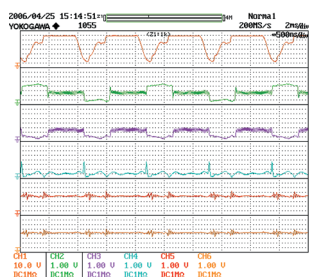
• Incoming signals of TCP(1Field)

② input: VIDEO 60Hz  
 signal : Checkered pattern of Black- White (MKSS13)  
 CH1 : L1601 (V+ADR5) (side-A through hole)  
 V : 10V/div H : 2ms/div  
 CH2 : IC1501 25pin (R\_E) side-A test plane "R\_E"  
 V : 1V/div H : 2ms/div  
 CH3 : IC1501 36pin (CLK) side-A test plane "CLK1"  
 V : 1V/div H : 2ms/div  
 CH4 : IC1501 29pin (LE\_E) side-A test plane "LE\_E"  
 V : 1V/div H : 2ms/div  
 CH5 : IC1501 43pin (HBLK) side-A test plane "HBLK"  
 V : 1V/div H : 2ms/div  
 CH6 : IC1501 42pin (LBLK) side-A test plane "LBLK"  
 V : 1V/div H : 2ms/div



• Incoming signals of TCP (1Field)

③ input : VIDEO  
 signal: Checkered pattern of Black- White (MKSS13)  
 CH1 : L1601(V+ADR5)(side-A through hole)  
 V : 10V/div H : 500ns/div  
 CH2 : IC1501 25pin (R\_E) side-A test plane "R\_E"  
 V : 1V/div H : 500ns/div  
 CH3 : IC1501 36pin (CLK) side-A test plane "CLK1"  
 V : 1V/div H : 500ns/div  
 CH4 : IC1501 29pin (LE\_E) side-A test plane "LE\_E"  
 V : 1V/div H : 500ns/div  
 CH5 : IC1501 43pin (HBLK) side-A test plane "HBLK"  
 V : 1V/div H : 500ns/div  
 CH6 : IC1501 42pin (LBLK) side-A test plane "LBLK"  
 V : 1V/div H : 500ns/div



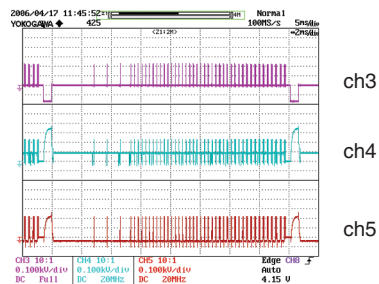
• Incoming signals of TCP (Resonance part)

# 60DRIVE ASSY, 60 Y DRIVE ASSY, 607 SCAN A ASSY, 607 SCAN B ASSY

A

- ① ch3 R1222(XPSUS) - K1201(SUSGND)  
V : 100V/div H : 2ms/div  
(50FHD X DRIVE Ass'y)
- ch4 K2818(ScanOUT) - K2301(SUSGND)  
V : 100V/div H : 2ms/div  
(50FHD SCAN B Ass'y HIGHSIDE)
- ch5 R2288(YPSUS) - KN2203(SUSGND)  
V : 100V/div H : 2ms/div  
(50FHD Y DRIVE Ass'y)

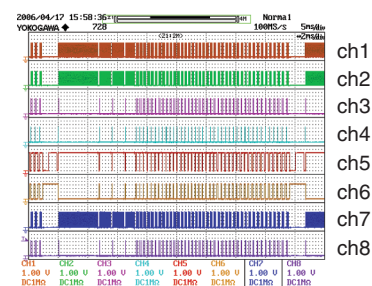
B



C

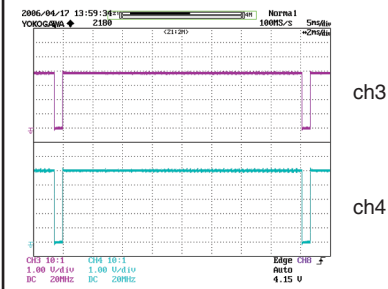
- ④ ch1 R2401(LE) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch2 R2404(CLK2) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch3 R2406(SI\_L) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch4 R2409(CLR) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch5 R2411(OC2\_U) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch6 R2415(OC1) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch7 R2418(CLK1) - K2014(DGND)  
H : 2ms/div
- ch8 R2420(SI\_H) - K2014(DGND)  
H : 2ms/div
- (50FHD Y DRIVE Ass'y)

E

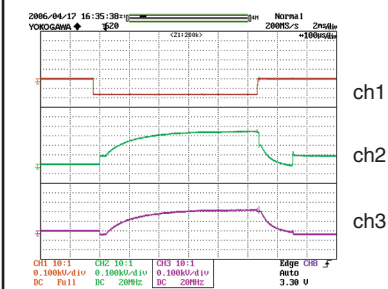


F

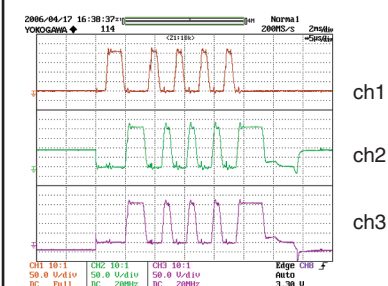
- ② ch3 K1012(XSUS-MSK) - K1002(DGND)  
V : 1V/div H : 2ms/div
- ch4 K1008(XNR-D) - K1002(DGND)  
V : 1V/div H : 2ms/div
- (50FHD X DRIVE Ass'y)



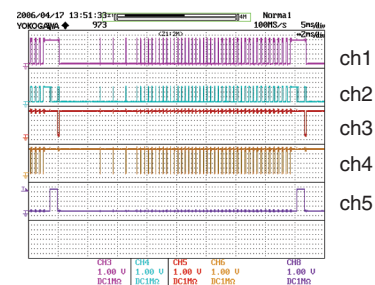
- ⑤ ch1 R1222(XPSUS) - K1201(SUSGND)  
V : 100V/div H : 100us/div  
(50FHD X DRIVE Ass'y)
- ch2 K2818(ScanOUT) - K2301(SUSGND)  
V : 100V/div H : 100us/div  
(50FHD SCAN B Ass'y HIGHSIDE)
- ch3 F2301(YPSUS) - KN2206(SUSGND)  
V : 100V/div H : 100us/div  
(Y DRIVE Ass'y)



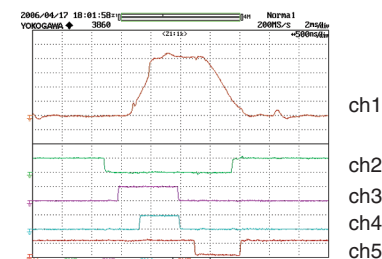
- ⑥ ch1 R1222(XPSUS) - K1202(SUSGND)  
V : 50V/div H : 5us/div  
(50FHD X DRIVE Ass'y)
- ch2 K2818(ScanOUT) - K2301(SUSGND)  
V : 50V/div H : 5us/div  
(50FHD SCAN A Ass'y LOWSIDE)
- ch3 F2301(YPSUS) - K2301(SUSGND)  
V : 50V/div H : 5us/div  
(50FHD Y DRIVE Ass'y)



- ③ ch1 K2007(YNOFS) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch2 K2005(YSUS-MSK) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch3 K2004(YNRST) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch4 K2003(SOFT-D) - K2014(DGND)  
V : 1V/div H : 2ms/div
- ch5 K2010(YPR-U) - K2014(DGND)  
V : 1V/div H : 2ms/div
- (50FHD Y DRIVE Ass'y)



- ⑦ ch1 F2301(YPSUS) - K2301(SUSGND)  
V : 50V/div H : 500ns/div
- ch2 K2002(YSUS-G) - K2014(DGND)  
V : 5V/div H : 500ns/div
- ch3 K2013(YSUS-U) - K2014(DGND)  
V : 5V/div H : 500ns/div
- ch4 K2011(YSUS-B) - K2014(DGND)  
V : 5V/div H : 500ns/div
- ch5 K2012(YSUS-D) - K2014(DGND)  
V : 5V/div H : 500ns/div
- (50FHD Y DRIVE Ass'y)





# 5. DIAGNOSIS INFORMATION

## 5.1 THE FLOW OF DIAGNOSIS

### 5.1.1 FLOWCHART OF FAILURE ANALYSIS FOR THE WHOLE UNIT



A

A

In the subsequent diagnostic steps, it is most likely that the multi base section is in failure.

Problems concerning video display

Is the panel mask properly displayed?

No

Failure analysis for the drive system ⇒ DR2

Yes

Check with the animated slanting ramp mask.

Is the on-screen display (OSD) properly displayed?

No

Failure analysis for the DIGITAL Assy ⇒ DG1

Yes

Check on the Factory menu.

Is an external video signal displayed properly?

No

Failure analysis for the MAIN Assy ⇒ MA3

Yes

Problems concerning the audio output

Is the audio signal output?

No

Failure analysis for the audio system ⇒ AU1

Yes

Specific failure whose cause is difficult to identify in the initial stage

C

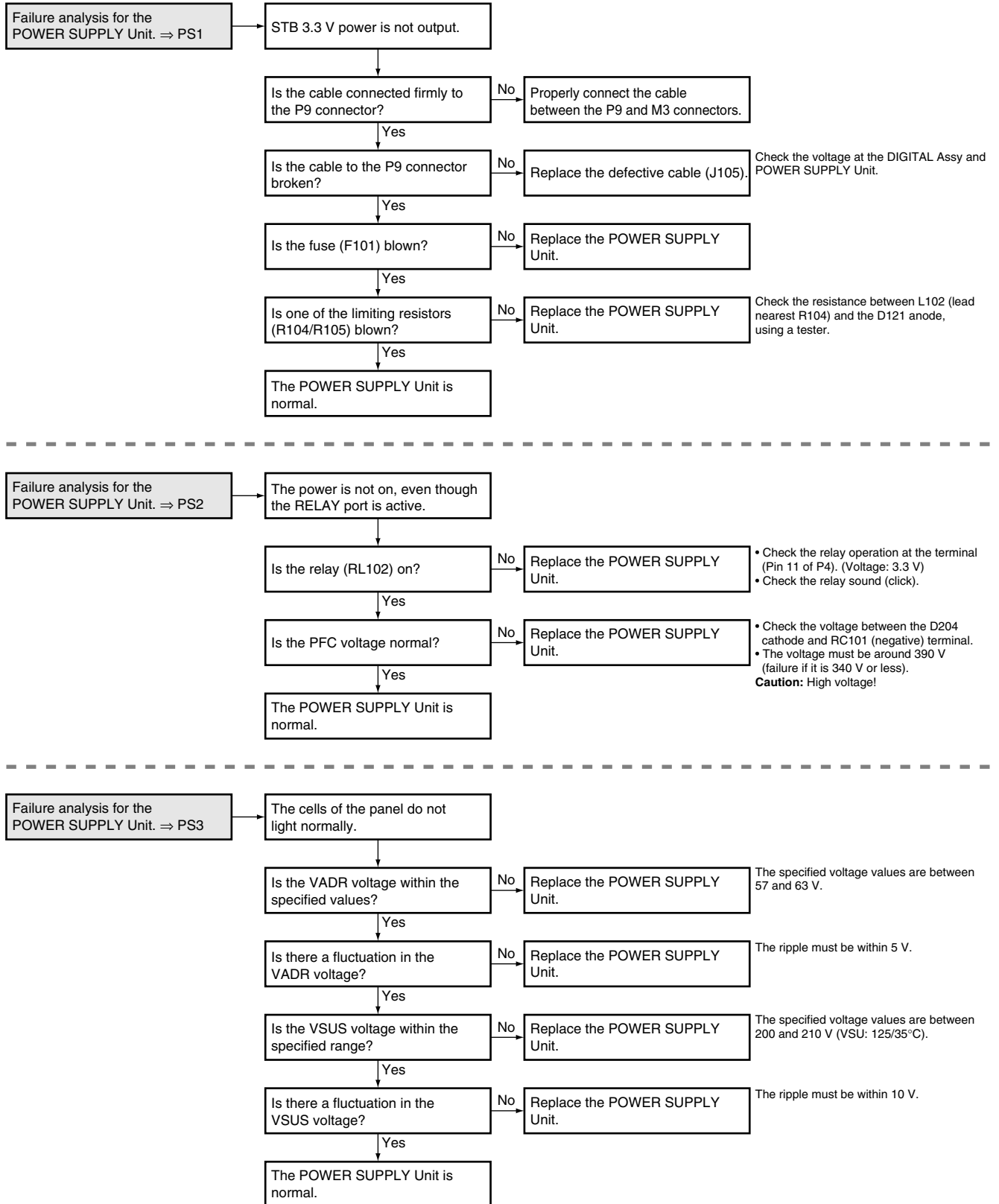
D

E

F

## 5.1.2 FLOWCHART OF FAILURE ANALYSIS FOR THE POWER SUPPLY UNIT

### Flowchart of Failure Analysis for The POWER SUPPLY Unit

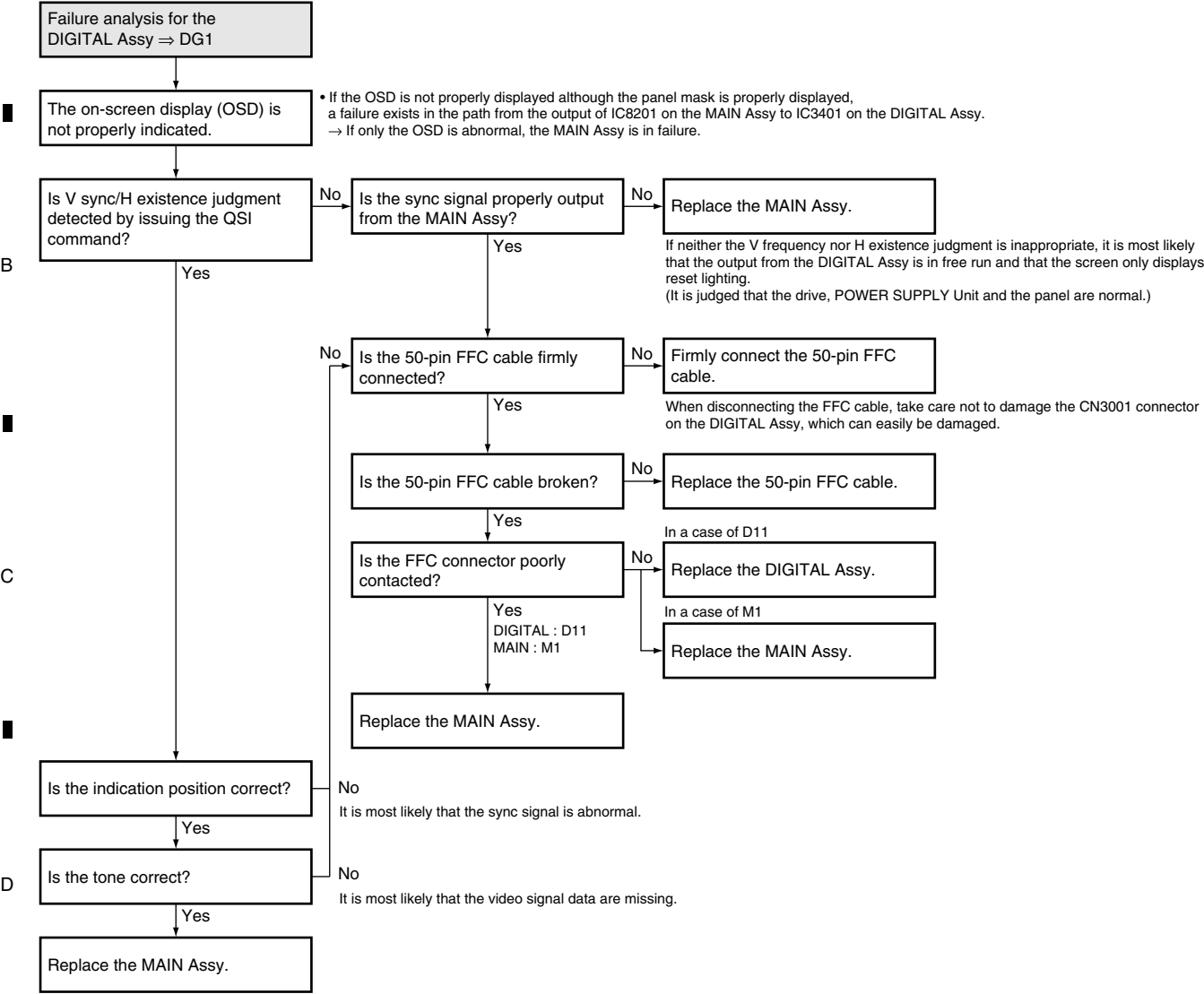


1234

5.1.3 FLOWCHART OF FAILURE ANALYSIS FOR THE DIGITAL ASSY

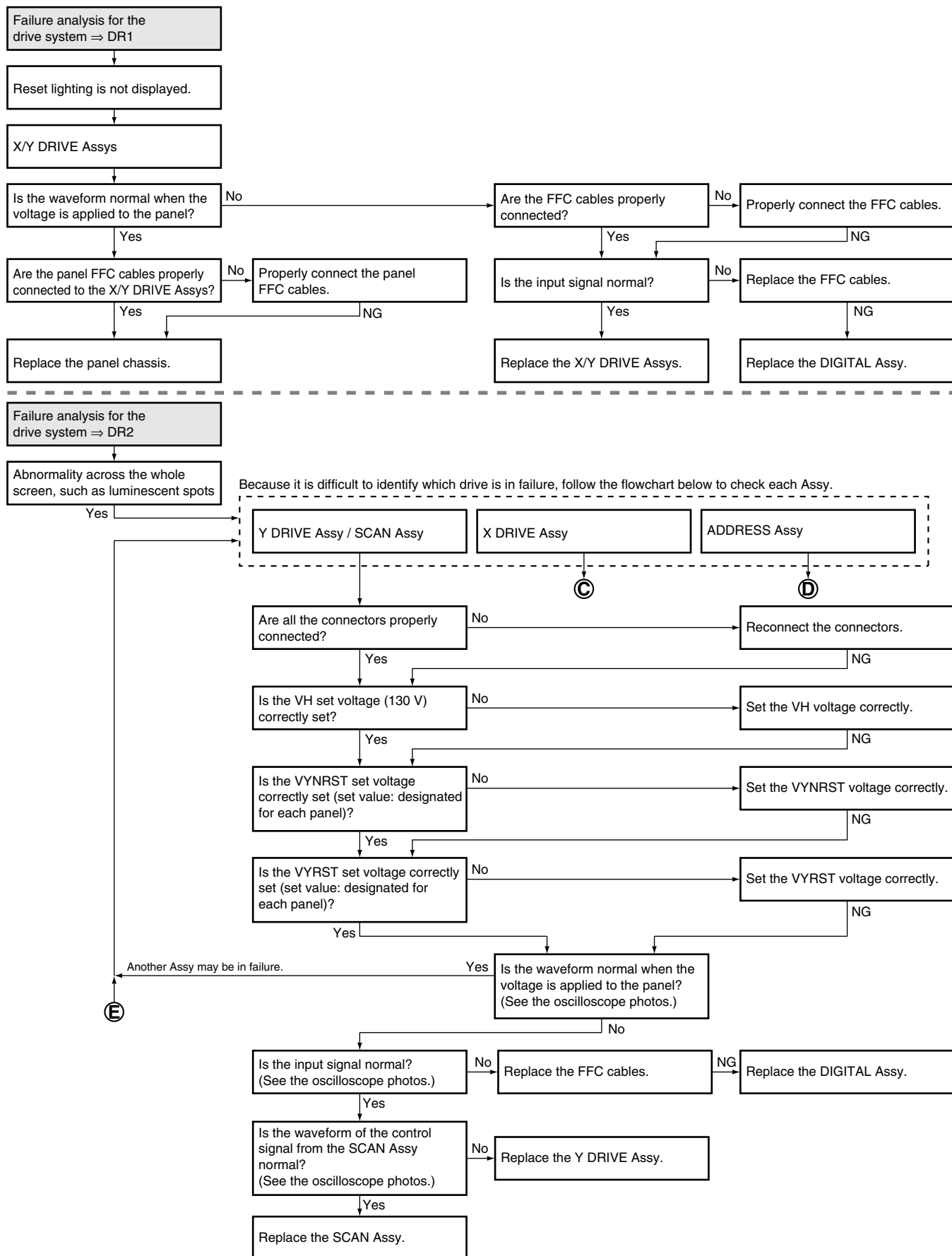
A

Flowchart of Failure Analysis for The DIGITAL Assy



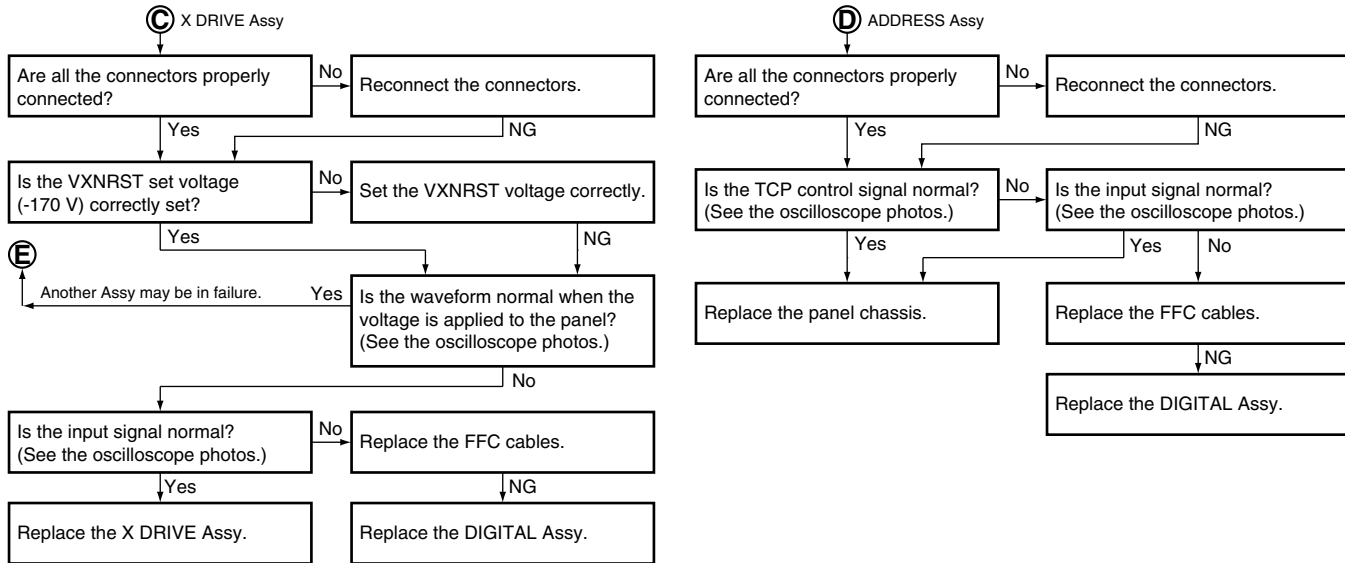
## 5.1.4 FLOWCHART OF FAILURE ANALYSIS FOR THE DRIVE ASSY

Flowchart of Failure Analysis for The Drive Assy (1)



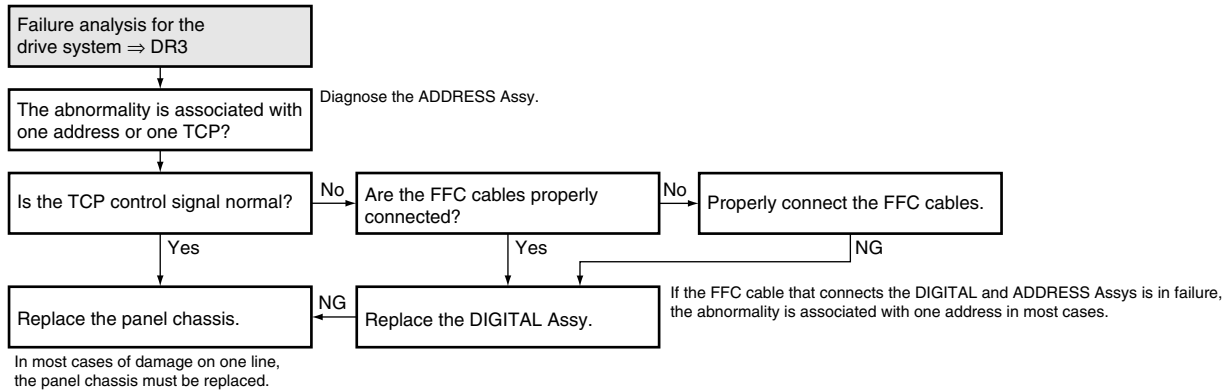
## Flowchart of Failure Analysis for The Drive Assy (2)

A



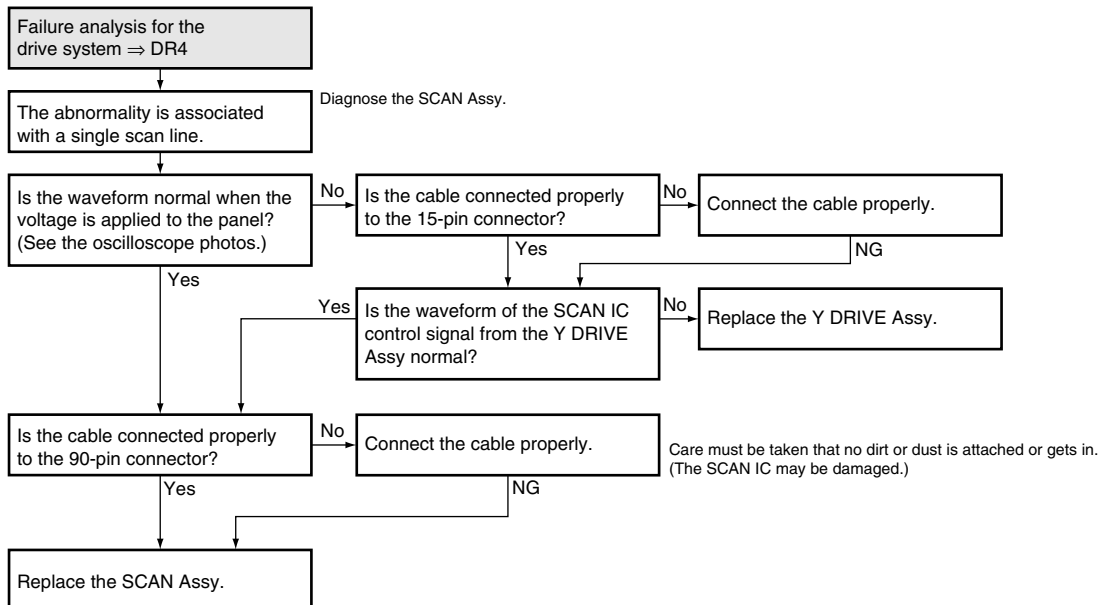
B

C



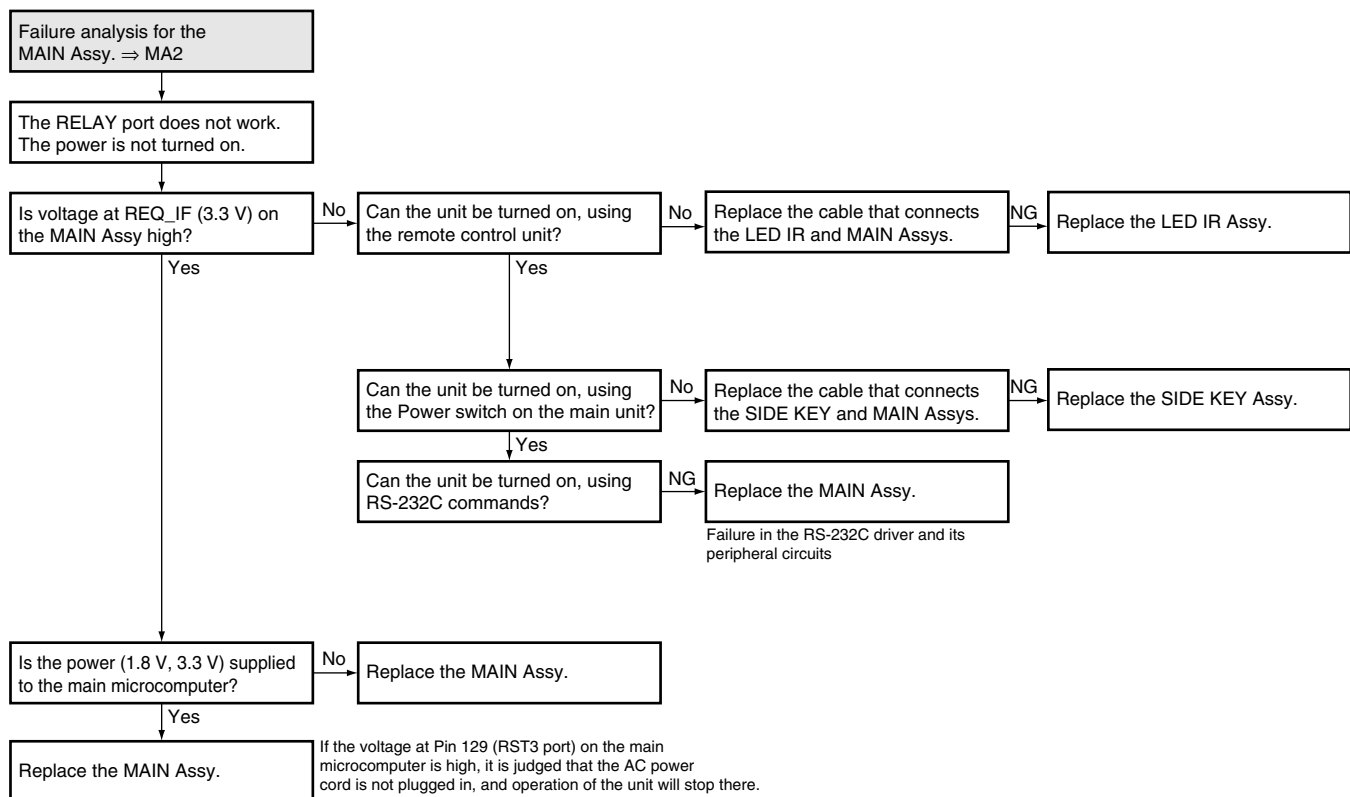
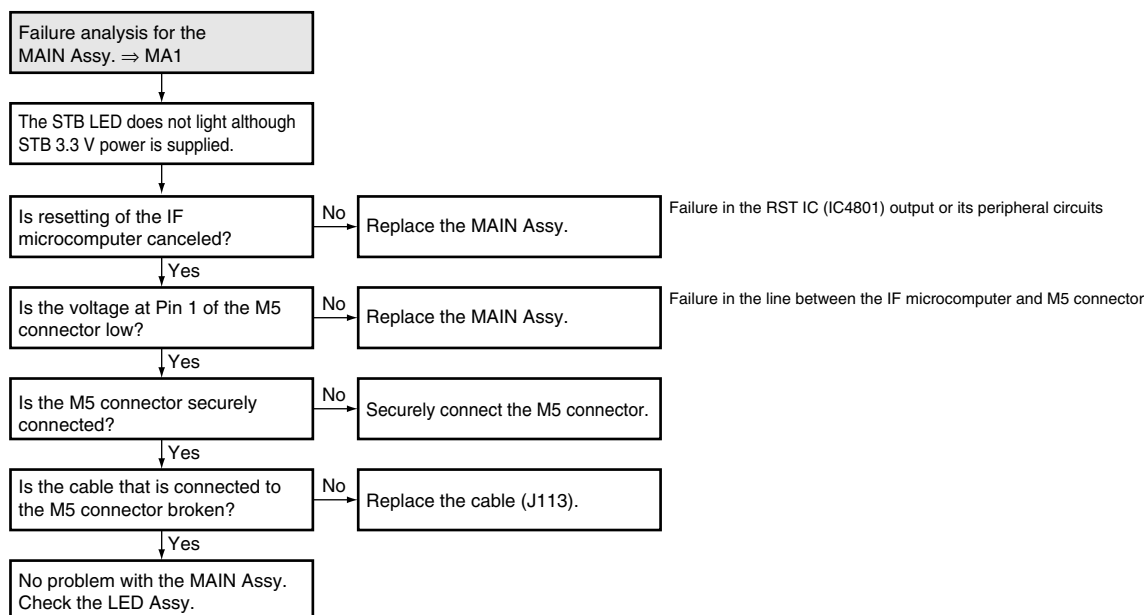
D

E



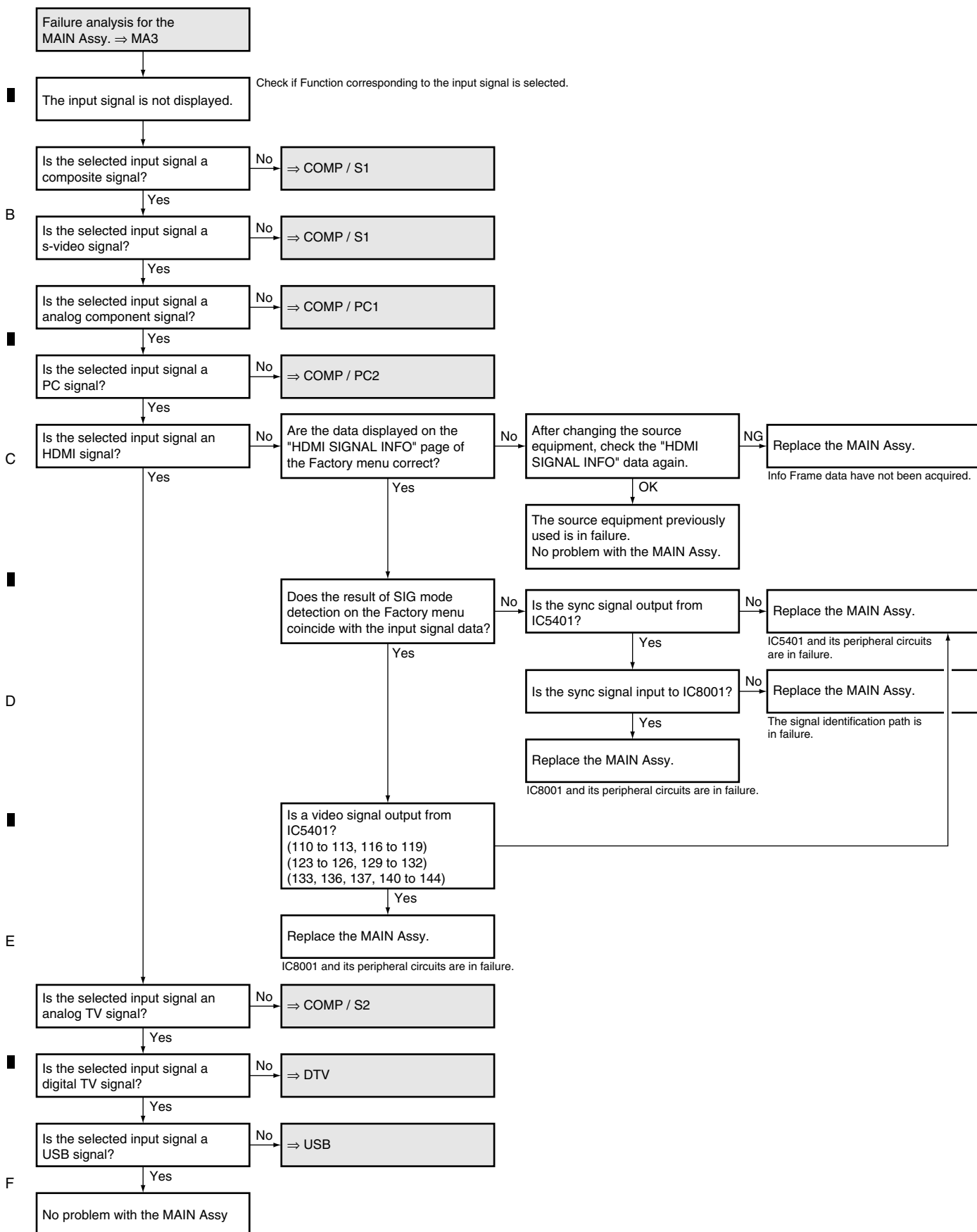
F

Flowchart of Failure Analysis for The MAIN Assy



## 5.1.6 FLOWCHART OF FAILURE ANALYSIS FOR THE VIDEO SYSTEM

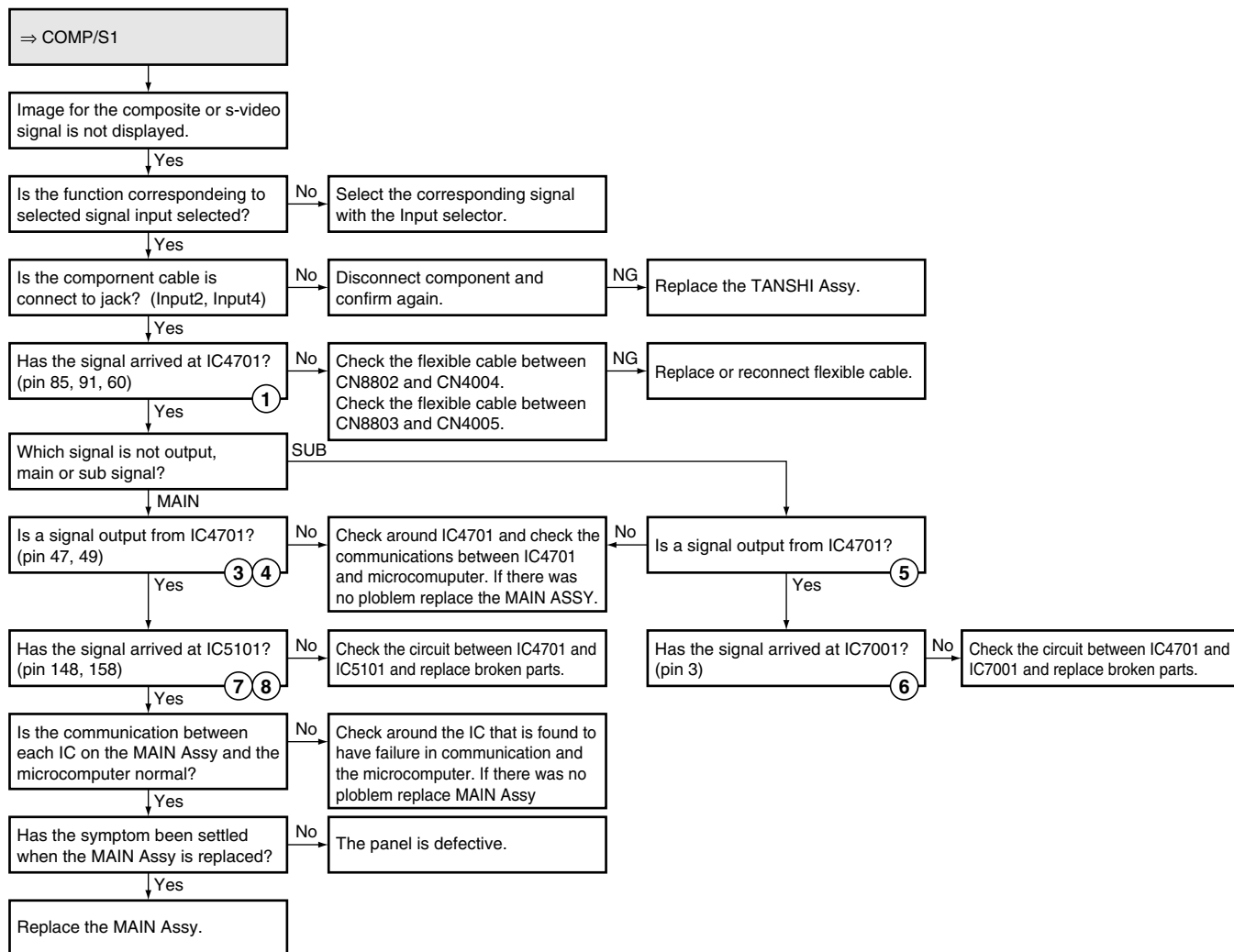
### A Flowchart of Failure Analysis for The Video System





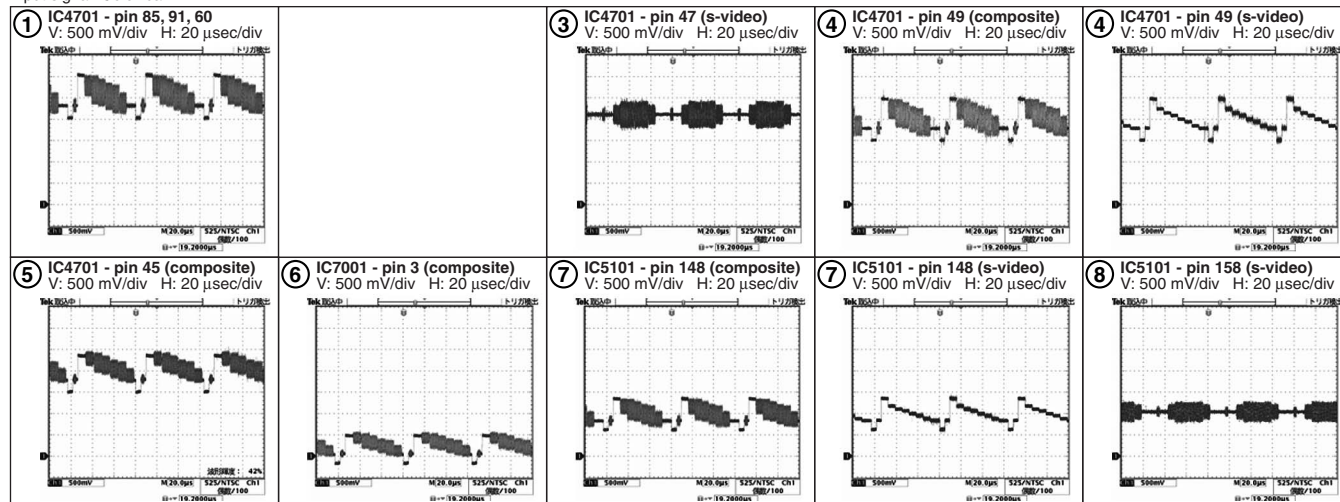
## Flowchart of Failure Analysis for The Video System

### No video from Composite or S-VIDEO

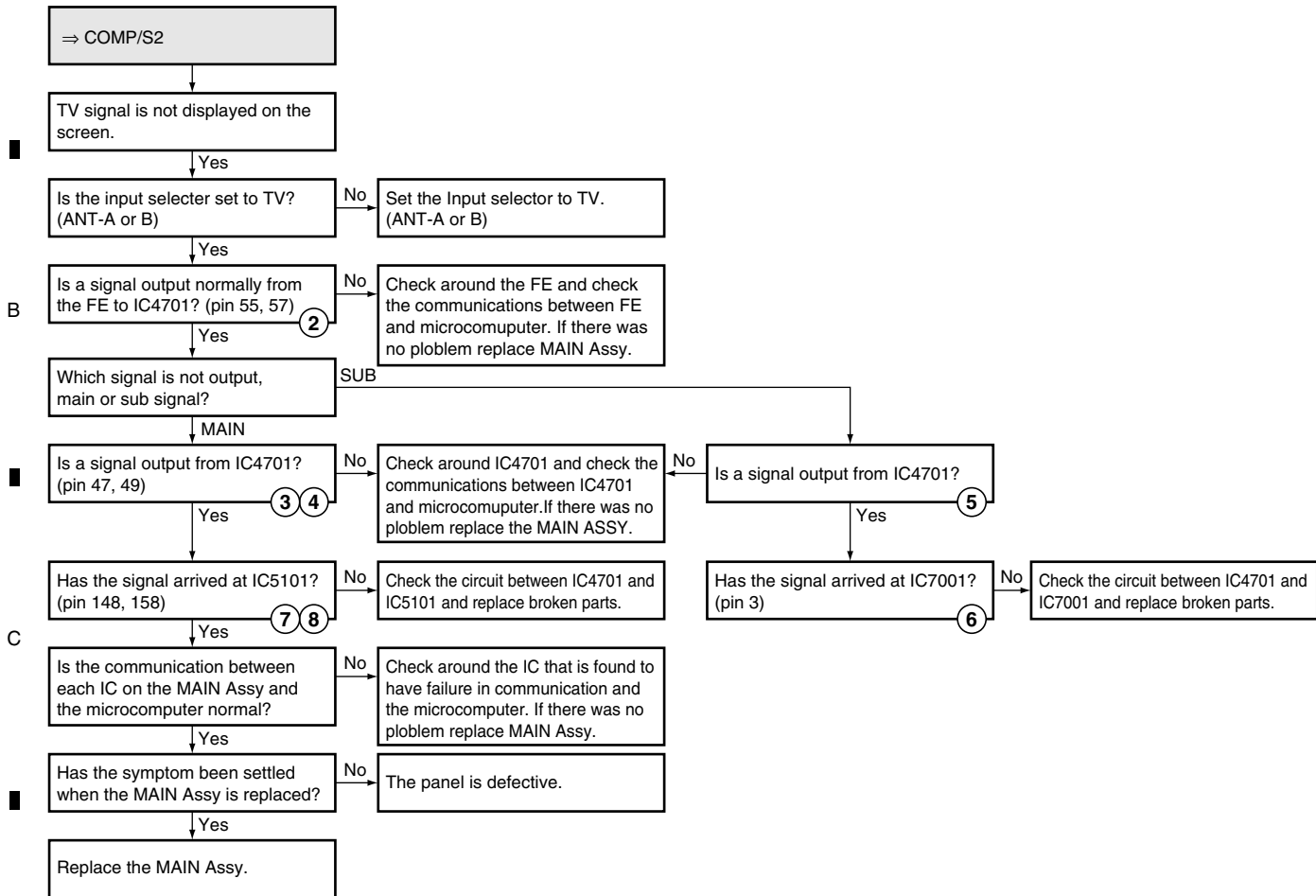


### ● Waveforms

Input signal: Color-bar



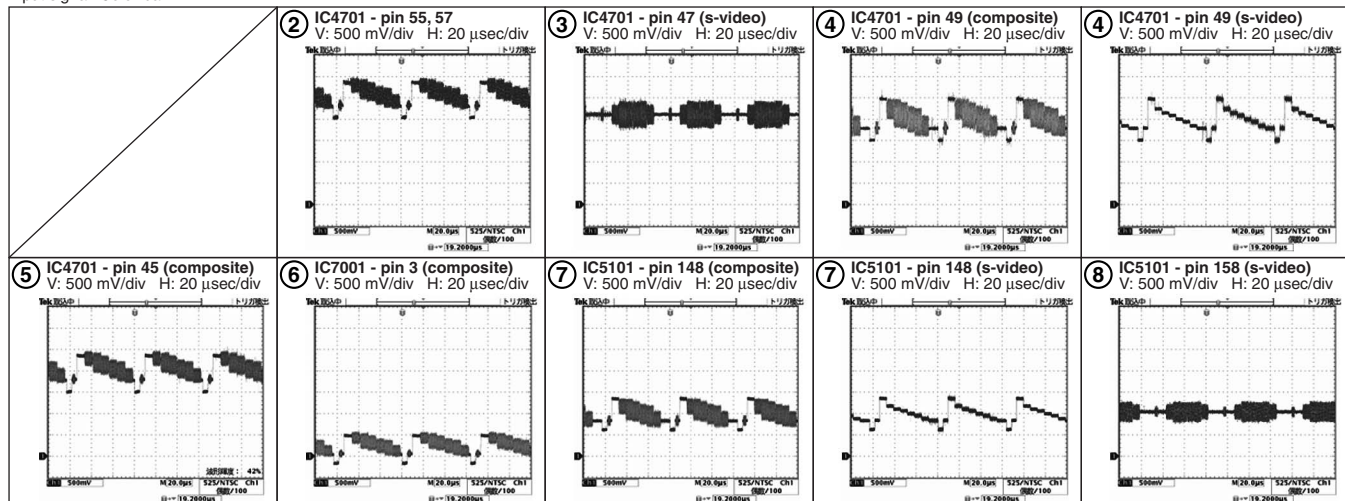
# A No video from TV signal



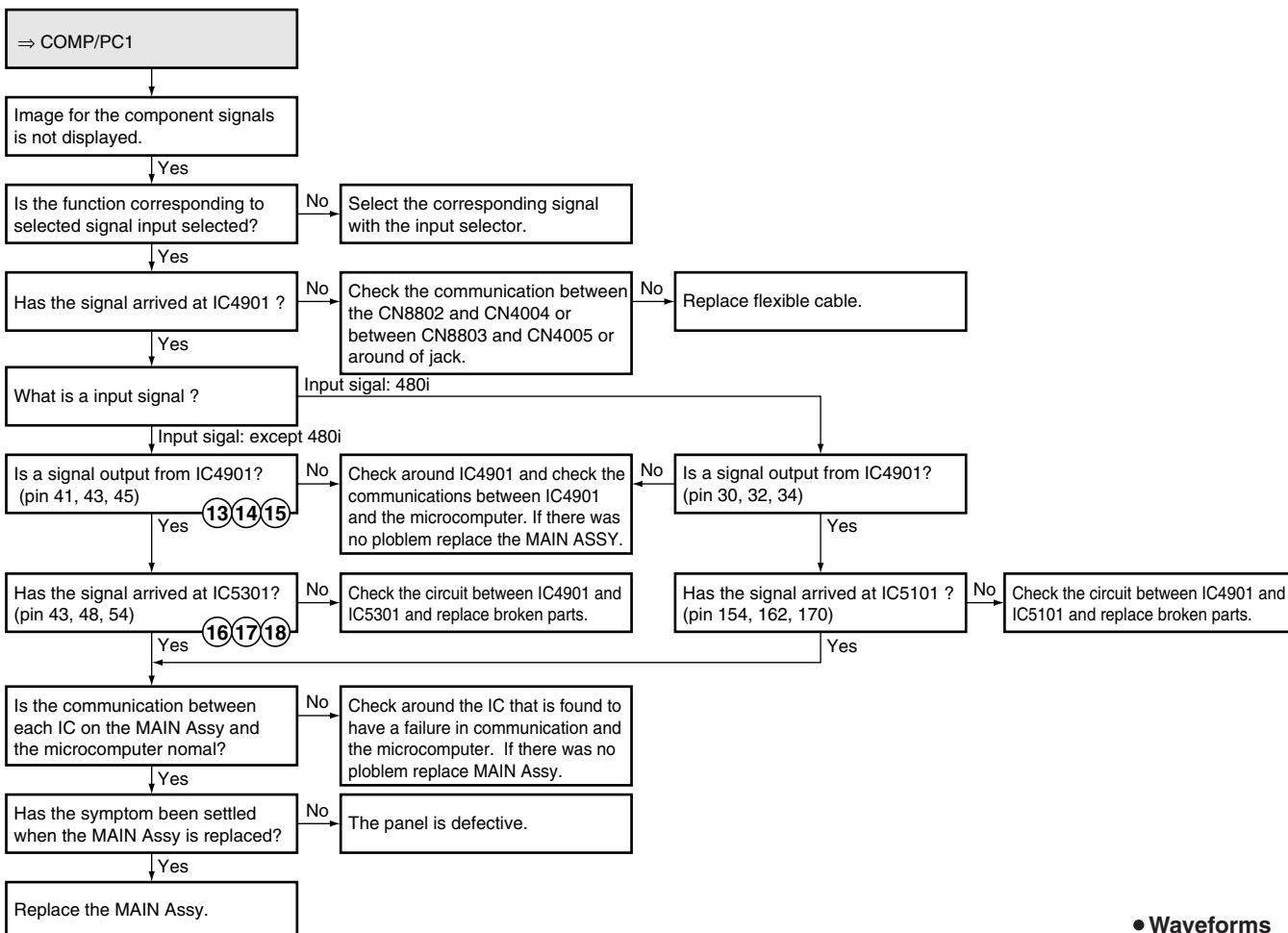
## D

### ● Waveforms

Input signal: Color-bar

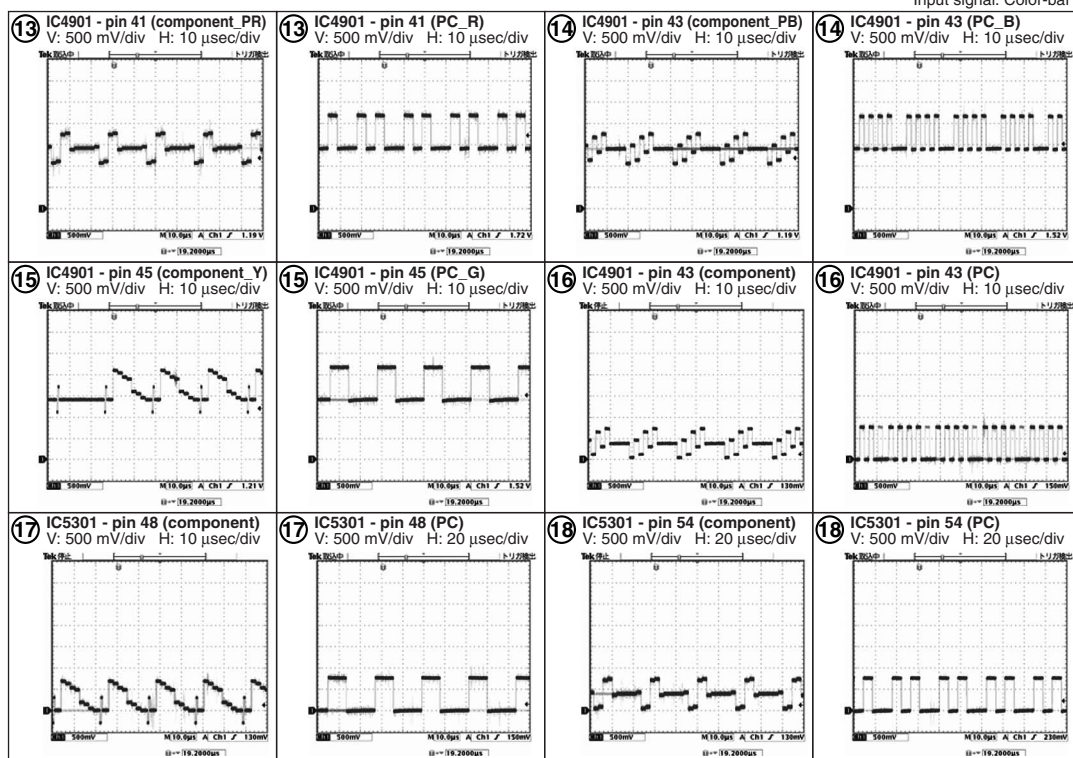


# No video from component

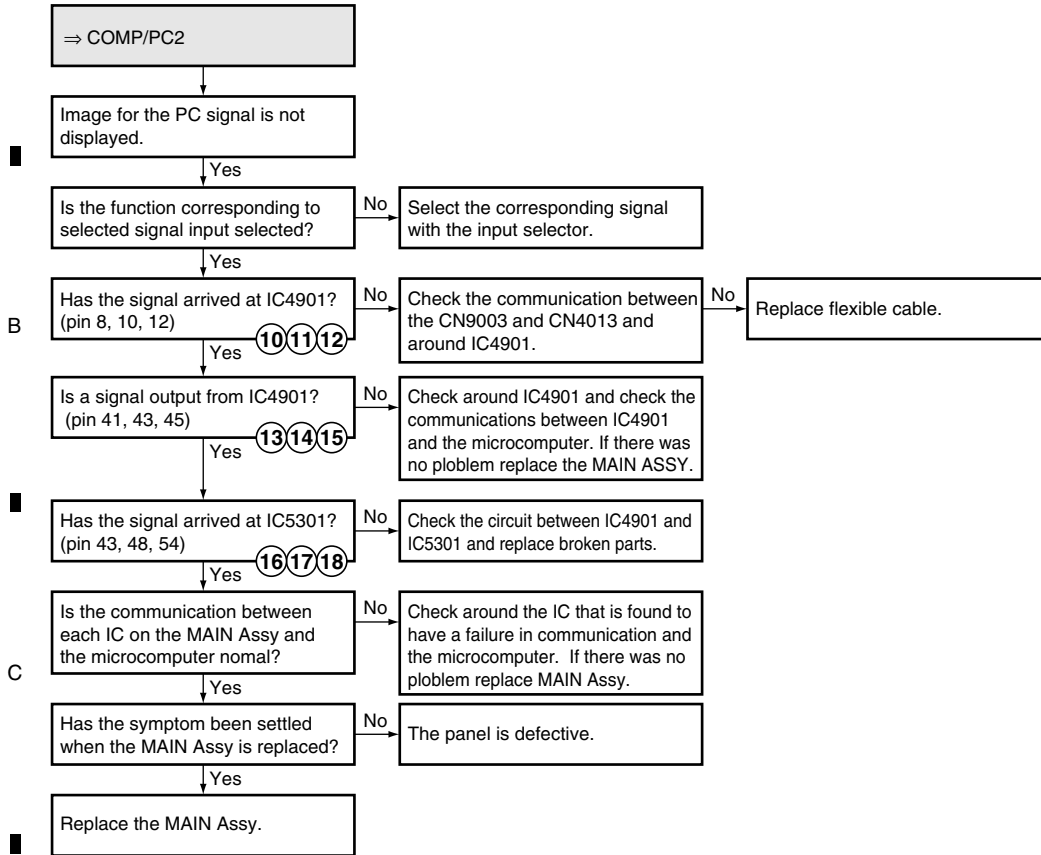


## Waveforms

Input signal: Color-bar



## A No video from PC



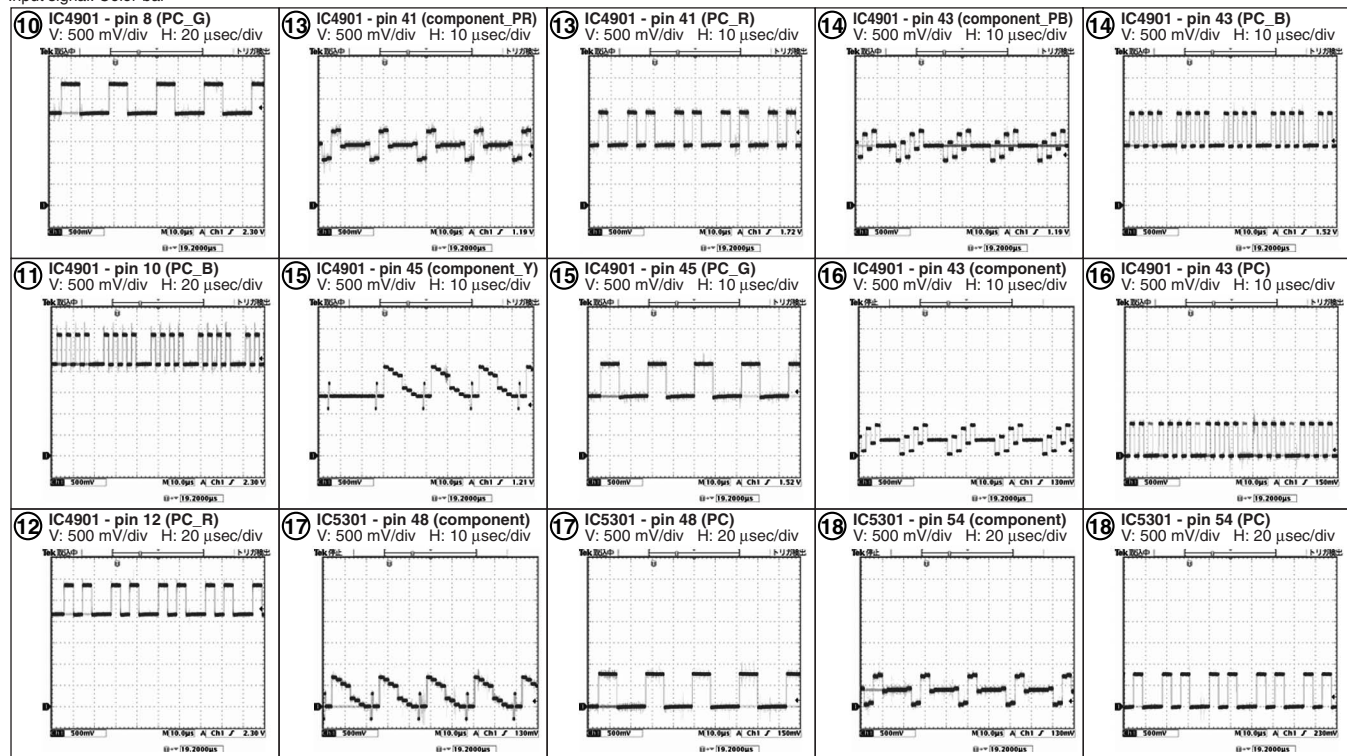
## • Waveforms

Input signal: Color-bar

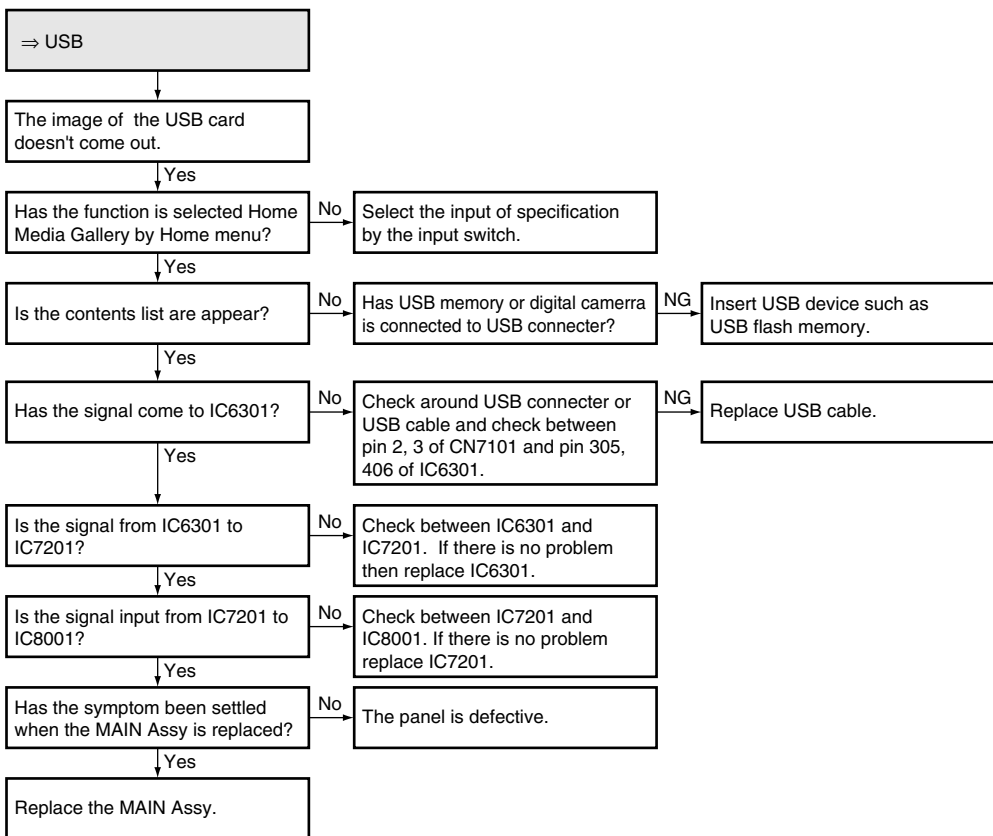
D

E

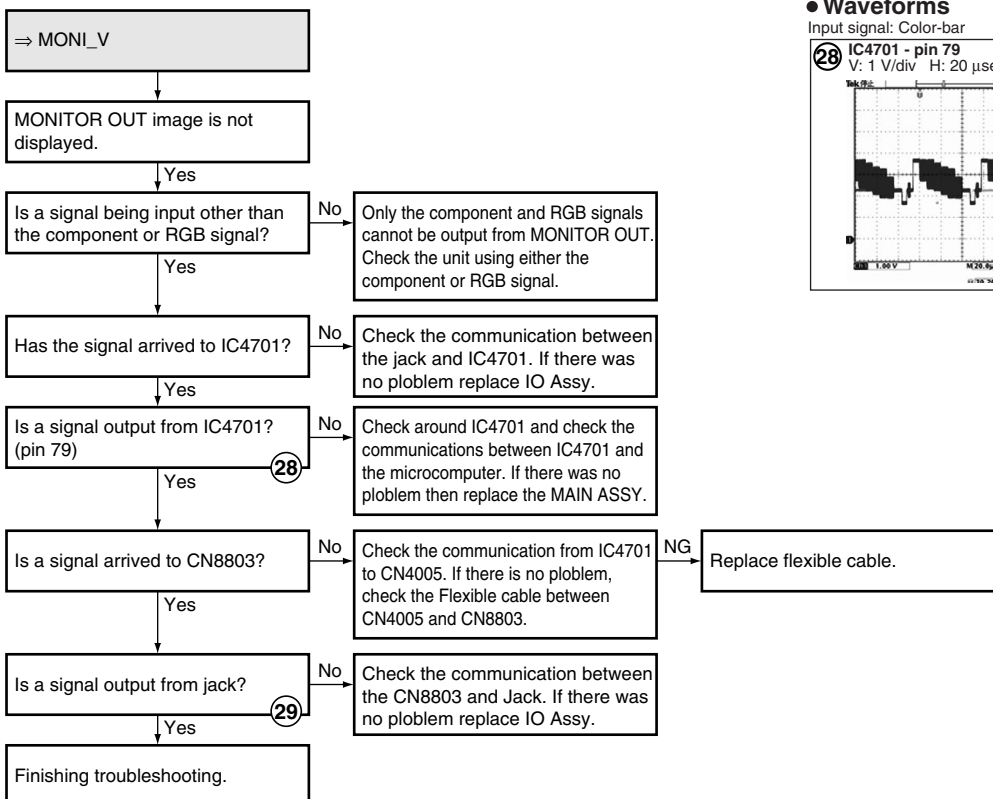
F



## No video from USB input

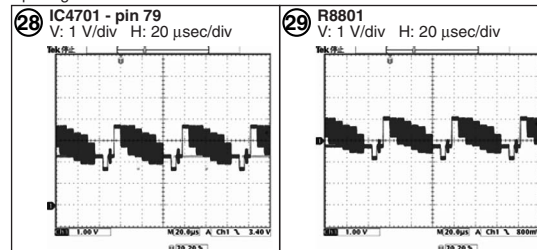


## No monitor output



## Waveforms

Input signal: Color-bar





## 5.1.7 FLOWCHART OF FAILURE ANALYSIS FOR THE AUDIO SYSTEM

### Flowchart of Failure Analysis for The Audio System

#### A No audio from monitor out

⇒ MONI\_A

The sound is not emitted audio out.

Yes

Is a signal output from IC4701?  
(pin 33, 34)

No

Check the surrounding of IC4701  
and each input signal. If there was  
no problem, replace the MAIN ASSY.

Yes

Has the signal arrived at CN4005?

No

Check the communication  
between IC4701 and CN4005.

NG

Replace the MAIN Assy.

Yes

#### B

Is a signal output from CN8803?

No

Check the Flexible cable between  
CN4005 and CN8803.

NG

Replace or reconnect flexible cable.

Yes

Has the signal come to TP8825  
or TP8826?

No

Check the contact between the  
CN8803 and R8886.  
Check the contact between the  
CN8803 and R8887.

NG

Replace the TANSHI Assy.

Yes

Is a signal output from jack?

No

Check the communication  
between the CN8803 and Jack.  
If there was no problem, replace  
IO Assy.

NG

Replace the TANSHI Assy.

Yes

#### C

Finishing troubleshooting.

#### No audio output from subwoofer

⇒ SUB-W

Has the sound been emitted from  
the Subwoofer?

No

Cancel muting then check again.

No

Cancel muting then check again.

Yes

Is the volume set to 0?

No

Raise the volume then check again.

#### D

Is a signal output from IC4701?  
(pin 31, 32)

No

Check the around of IC4701 and  
each input signal. If there was no  
problem, replace the MAIN ASSY.

Yes

Is a signal output from IC4704?  
(pin 1, 7)

No

Check around IC4704.

NG

Replace the MAIN Assy.

Yes

Has the signal arrived at CN4005?

No

Check the communication between  
IC4704 to CN4005.

NG

Replace the MAIN Assy.

Yes

Is a signal output from CN8803?

No

Check the Flexible cable between  
CN4005 and CN8803.

NG

Replace or reconnect flexible cable.

Yes

#### E

Has the signal come to TP8843?

No

Check the contact between the  
CN8803 and R8892.

NG

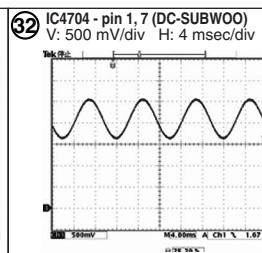
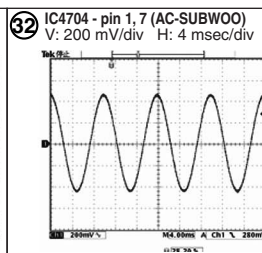
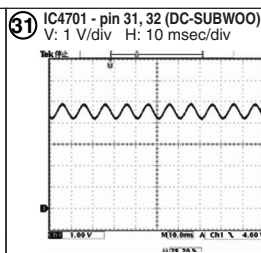
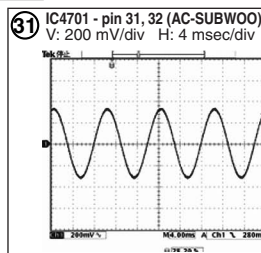
Replace the TANSHI Assy.

Yes

Check the around of pin Jack.

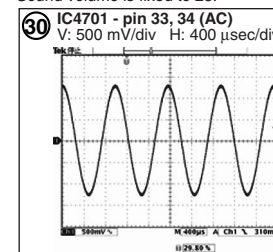
#### Waveforms

Input signal: 100 Hz  
Sound volume is fixed to 25.

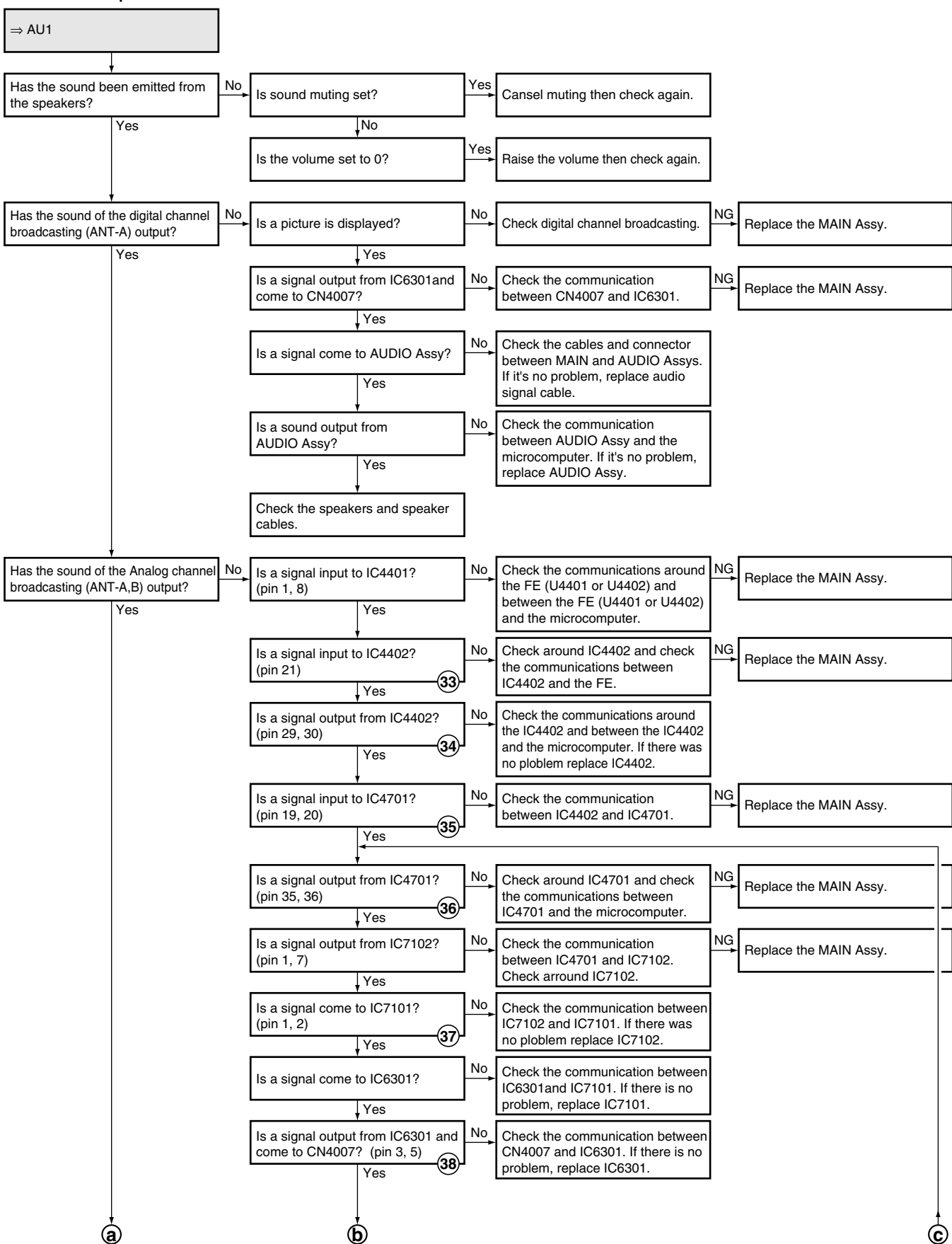


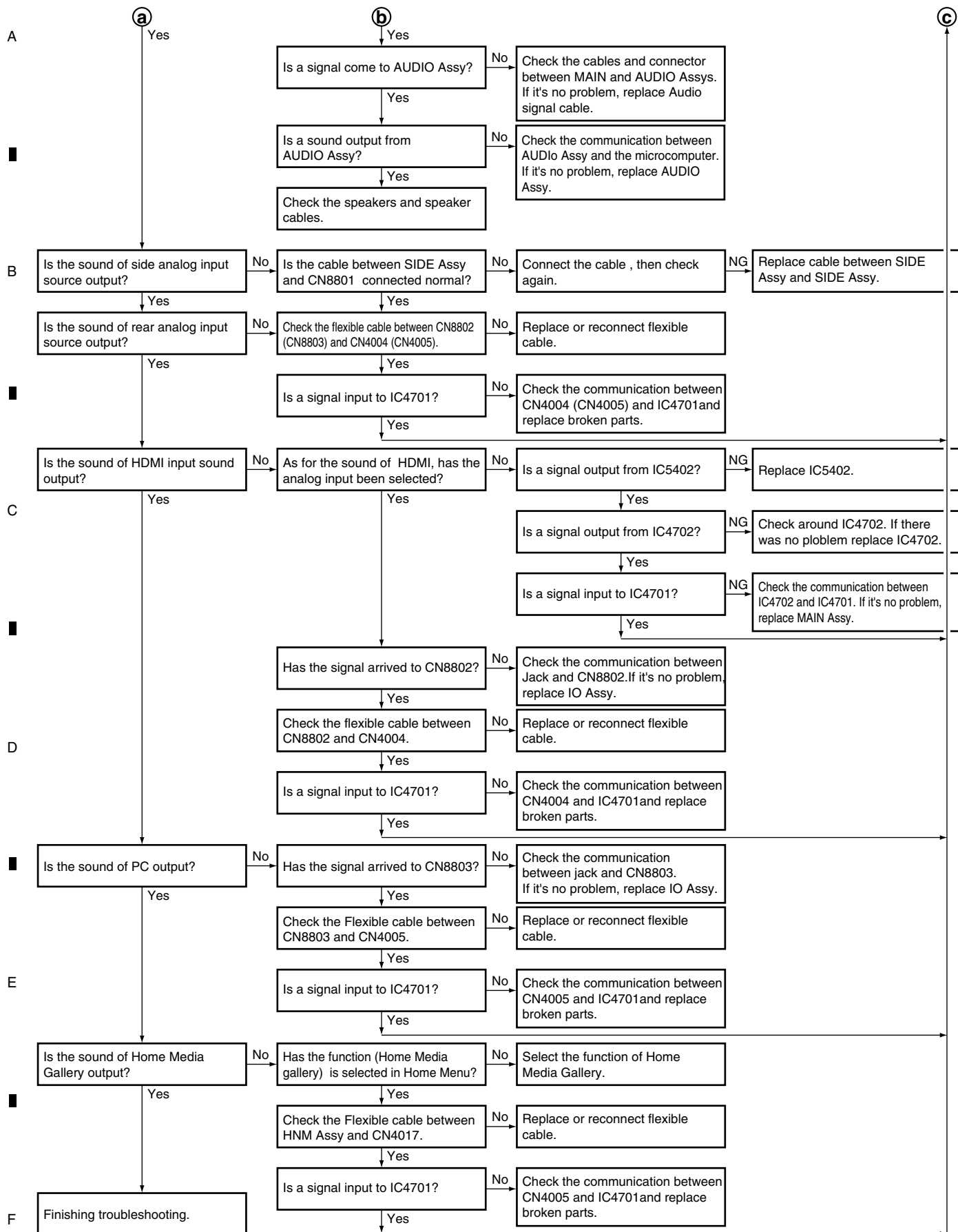
#### Waveforms

Input signal: 1kHz  
Sound volume is fixed to 25.



# No sound from panel

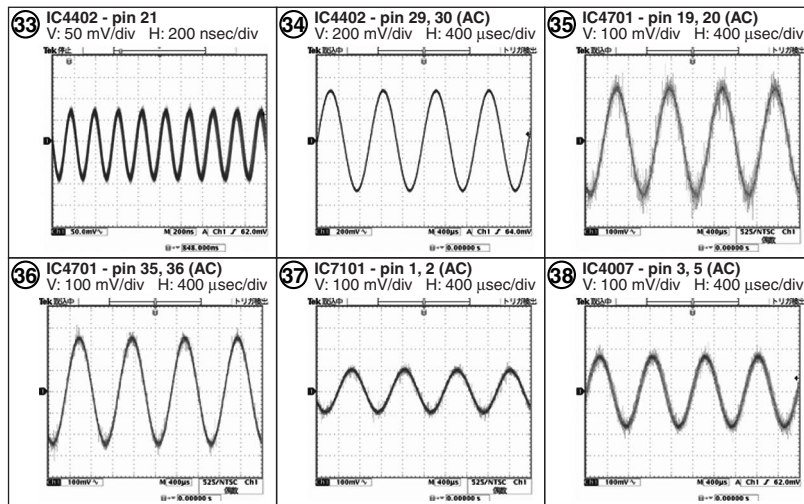




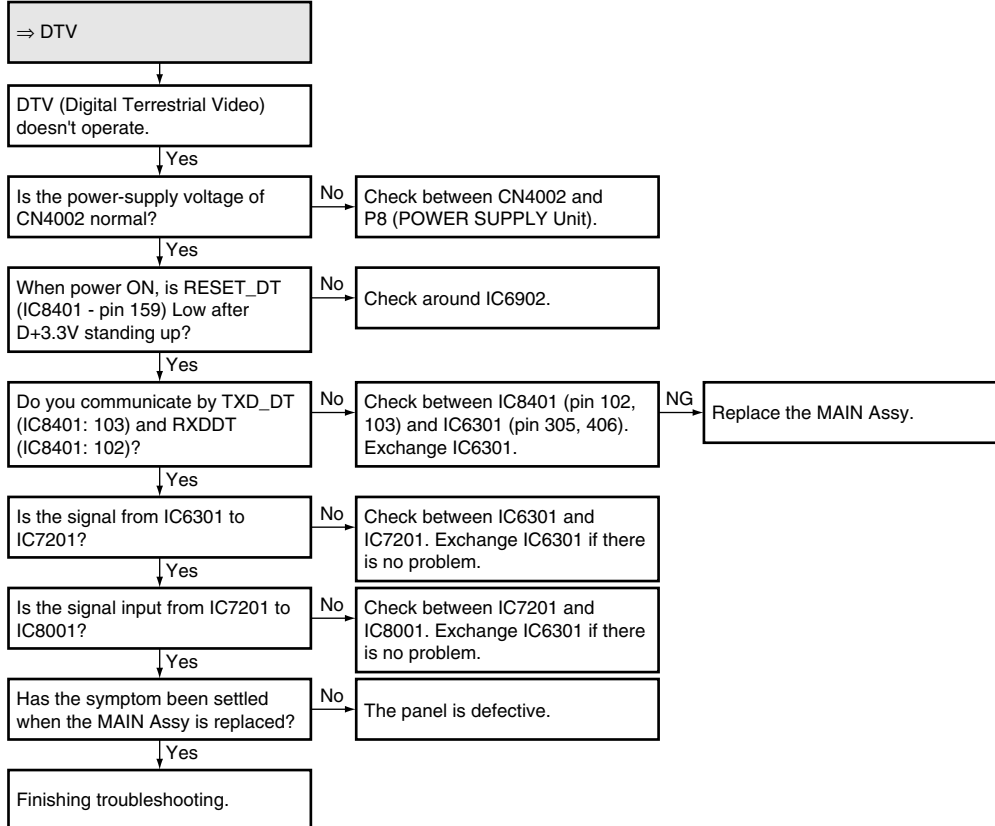


## ● Waveforms

Input signal: 1kHz  
Sound volume is fixed to 25.



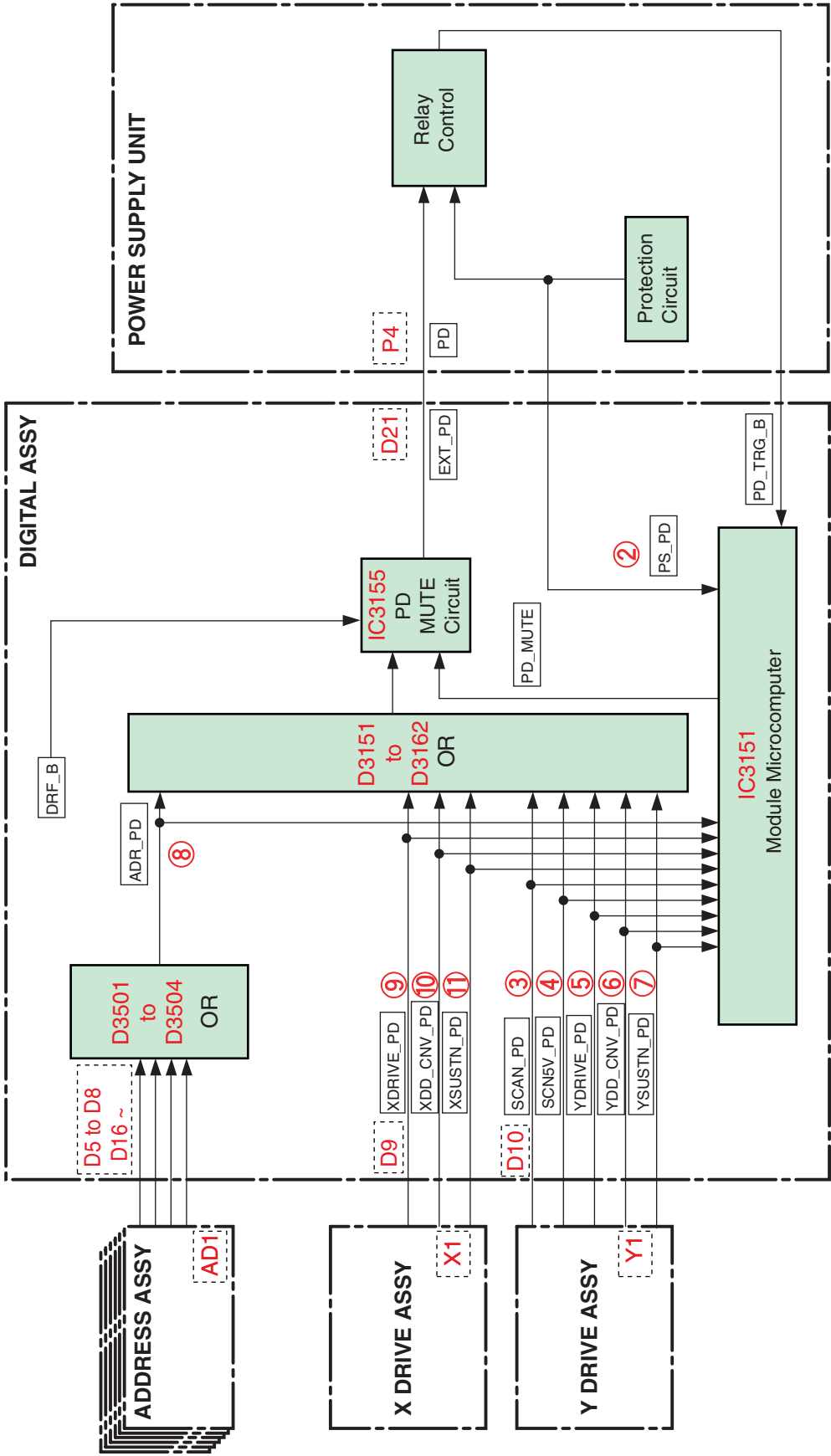
## DTV doesn't work



5.2 POWER DOWN  
5.2.1 BLOCK DIAGRAM OF THE POWER-DOWN SIGNAL

Block Diagram of the Power-Down Signal

**Note:**  
The figures ② to ⑪ indicate the number of times the LED flashes when power-down occurs in the corresponding route.



## 5.2.2 POWER DOWN OF FAILURE ANALYSIS

### PD (Power-down) diagnosis

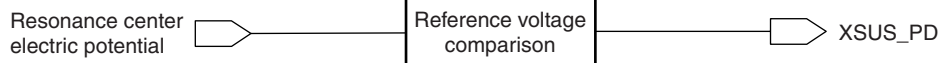
#### Prediction of failure symptoms when a PD (power-down) is generated

LED Flashing Count	PD Circuit	Checkpoint	Main Cause
2	Power supply PD	POWER SUPPLY Unit	Failure in the POWER SUPPLY Unit
		X, Y DRIVE Assy	MSK_MOD is damaged (short-circuiting between VS and GND)
		Each Assy	16.5V/ 12V/ 6.5V/ 5.1V short-circuit within one of PCB.
3	SCAN PD	SCAN Assy	SCAN IC is damaged (short-circuiting between VH and GNDH)
		Y DRIVE Assy	Connectors disconnected between the POWER SUPPLY Unit and the Y DRIVE Assy
			Connectors disconnected between the DIGITAL and the Y DRIVE Assys
4	IC5V PD	SCAN Assy	Failure in the VH power
			SCAN IC is damaged (short-circuiting between IC5V and GNDH)
		Y DRIVE Assy	Disconnection of the scan-bridge (15-pin) connector
5	Y-DRIVE PD	Y DRIVE Assy	Failure in the photo coupler
6	Y DCDC PD	Y DRIVE Assy	Abnormality in the IC5V DC/DC converter
7	Y SUS PD	Y DRIVE Assy	Abnormality in the 16.5 V power
8	Address PD	ADDRESS Assy	MSK_MOD is damaged (short-circuiting of the mask switch)
9	X-DRIVE PD	X DRIVE Assy	Abnormality in the VOFS DC/DC converter
10	X DCDC PD	X DRIVE Assy	Abnormality in the VPRST DC/DC converter
11	X SUS PD	X DRIVE Assy	Abnormality in VC_15V DC/DC converter
			Abnormality in the DK module
			Abnormality in the control signal line
			Short-circuiting of Vadr
			TCP damaged
			Connectors disconnected between the DIGITAL and the X DRIVE Assys
			Abnormality in the 16.5 V power
			Abnormality in VC_15V power
			Abnormality in VXNRST power
			Abnormality in the DK module
			Abnormality in the control signal line
			Connectors disconnected between the POWER SUPPLY Unit and the X DRIVE Assy

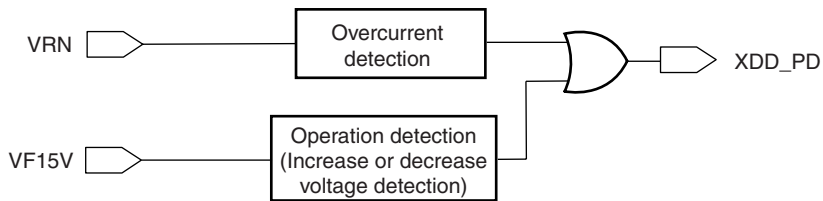
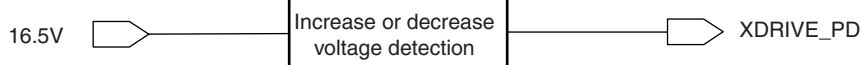
#### List of detection of disconnected connectors

Assy Name	Connector	Connection Assy	Number of LED flashes	Screen Display
60 X DRIVE	CN1001	60 DIGITAL Assy	9 (X DRIVE)	White screen
	CN1204	POWER SUPPLY Unit (ADR system)	–	
	CN1206	POWER SUPPLY Unit (drive system)	10 (X-DCDC)	
	CN1201, CN1203	ADDRESS Assy	8 (ADR)	
60 Y DRIVE	CN2001	60 DIGITAL Assy	3 (SCAN)	White screen
	CN2351	POWER SUPPLY Unit (drive system)	3 (SCAN)	
	CN2353	POWER SUPPLY Unit (ADR system)	–	
	CN2354, CN2356	60 ADDRESS Assy	8 (ADR)	
	CN2401, CN2402	60 SCAN Assy	4 (SCN-5V)	
60 SCAN	CN2901, CN2801	60 Y DRIVE Assy	4 (SCN-5V)	
60 ADDRESS	CN1602, CN1802	60 DIGITAL Assy	8 (ADRS)	
	CN1601, CN1801	60 X/Y DRIVE Assy	8 (ADRS)	

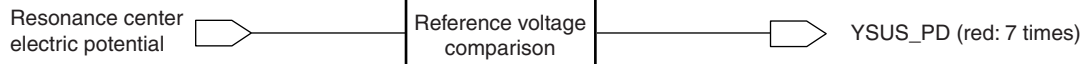
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**X Drive PD system (FHD)**

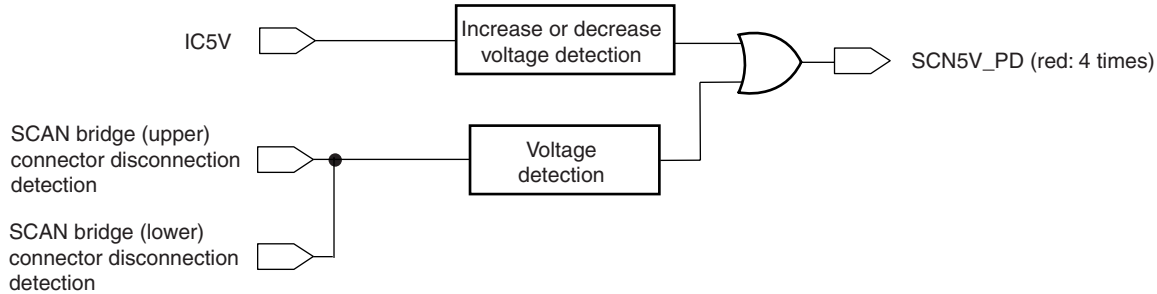
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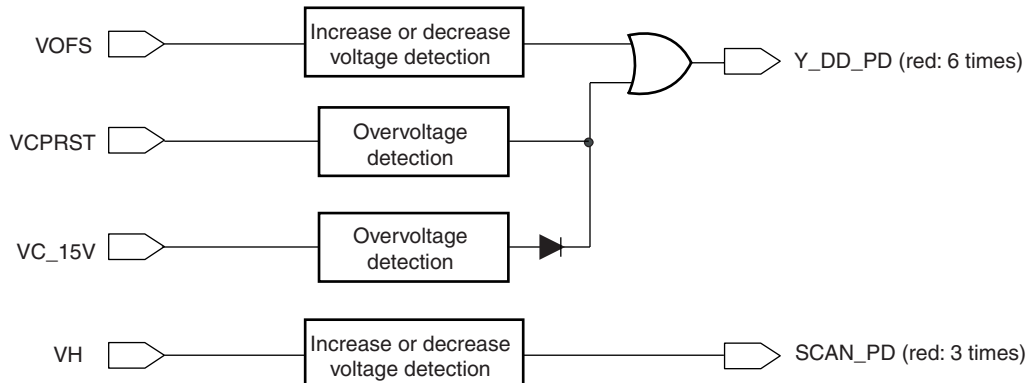
C

**Y Drive PD system (FHD)**

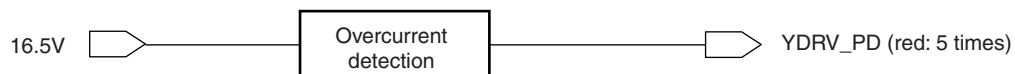
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E



F

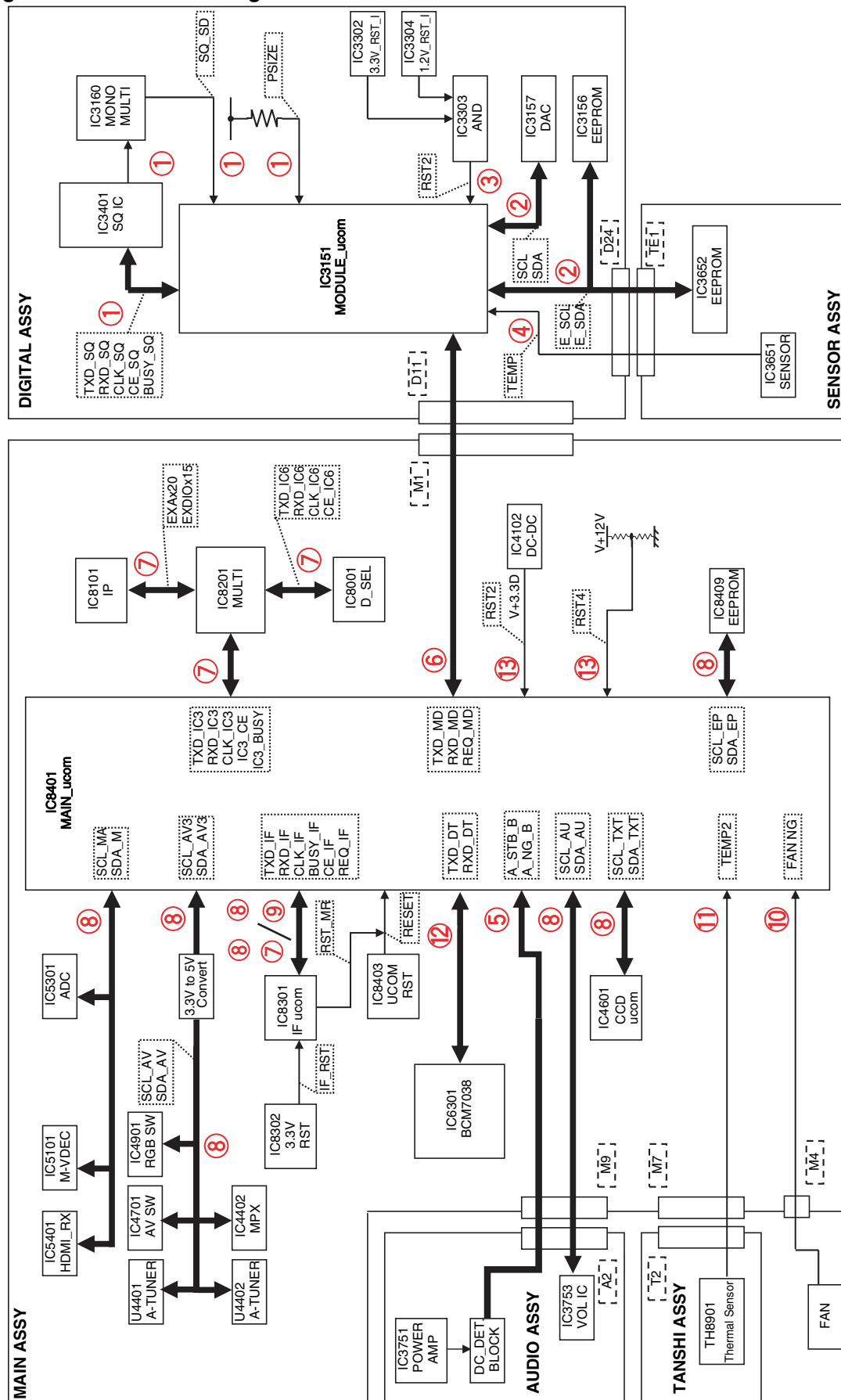


### 5.3.1 BLOCK DIAGRAM OF THE SHUT-DOWN SIGNAL

### ■ Block Diagram of the Shutdown Signal



**Note :** The figures ① to ⑬ indicate the number of times the LED flashes when shut-down occurs in the corresponding route.



## 5.3.2 SHUT DOWN OF FAILURE ANALYSIS

### SD (SHUT DOWN) DIAGNOSIS

Frequency of LED Flashing	Major Type	Detailed Type	Log Indication in Factory Mode		Checkpoint	Possible Defective Part	Remarks
			MAIN	SUB			
Blue 1	Abnormality in the Sequence Processor	Communication error		RTRY	CLK_SQ/TXD_SQ, etc.	IC3151, IC3401	SQ_IC communication not established
		Drive stop	SQ-IC	SONO	Check if the video sync signal is input to IC3401.	CN3001, IC3401	If the signal detection by the module microcomputer is properly performed, the unit operates on an external sync.
		Busy		BUSY	BUSY_SQ	IC3401	If BUSY_SQ remains high, a shutdown is generated.
Blue 2	Failure in IC communication with the module microcomputer	Incoherent version (hardware, software)		VER-HS	Check the model number of the DIGITAL Assy and the destination of the sequence processor.	IC3301, IC3401	The written SQ_PROG is incoherent with data on the DIGITAL Assy.
		DIGITAL Assy EEPROM		EEPROM	IC communication line of IC3156	IC3151, IC3156	Check the pull-up resistor of the IC control line and the power to the corresponding IC.
		SENSOR Assy EEPROM	MD-IC	BACKUP	IC communication line of IC3652	IC3151, IC3652	Check the pull-up resistor of the IC control line and the power to the corresponding IC.
		DAC		DAC	IC communication line of IC3157	IC3151, IC3157	Check the pull-up resistor of the IC control line and the power to the corresponding IC.
Blue 3	Abnormality in RST2 power decrease	-	RST2	-	Is the output voltage of the DC-DC converter low? The 12 V power is not output.	AXY1135	If RST2 does not become high after the unit is turned on, a shutdown will be generated in several seconds.
Blue 4	High temperature of the panel	-	TMP_NG	TEMP1	Ambient temperature Abnormality in the panel temperature sensor	IC3651	Check if V + 12 V is started. If TEMP1 that is read by the module microcomputer is 75°C or higher, a shutdown will be generated.
Blue 5	Short-circuiting of the speakers	-	AUDIO	-	Speaker terminals AUDIO_AMP	CN3753, CN3901, JA33901 IC3751	Check the connection with the SENSOR Assy. Check if any speaker cable is in contact with the chassis.
Blue 6	Failure in communication with the module microcomputer	-	MODULE	-	Periphery of the cable between A2 and M8	CN3752, CN4007	Check if cables are firmly connected.
Blue 7	Failure in main microcomputer 3-wire serial communication	IF microcomputer		IF	Communication line between IF and MAIN	IC3151, IC8401	Check the communication lines (RXD, MOD/RXD, MOD/REQ, MOD).
		MULTI	MA-SRL	MULTI	Communication line between MULTI_M and MAIN	CN3001, CN4001	Check if cables are firmly connected.
				I/P	Bus communication line between IP and MULTI_M	IC8201, IC8401	Check the communication lines (TXD, IF/RXD, IF/CLK, IF/BUSY, IF/CE, IF/REQ, IF).
				D_SEL	Communication line between D_SEL and MULTI_M	IC8001, IC8201	Check the communication lines (EXA/EXDIO).
		AV Switch		AV-SW	IC communication line between AV_SW and MAIN	IC4701, IC8401	Check the communication lines (TXD, IC6/RXD, IC6/CLK, IC6/CE, IC6).
		RGB Switch		RGB-SW	IC communication line between RGB_SW and MAIN	IC4901, IC8401	Check the communication lines (SCL_AV3/SDA_AV3 or SCL_AV/SDA_AV).
		Analog Tuner		FE1	IC communication line between A_Tuner and MAIN	U4401, IC8401	Check the communication lines (SCL_AV3/SDA_AV3 or SCL_AV/SDA_AV).
		Analog Tuner		FE2	IC communication line between A_Tuner and MAIN	U4402, IC8401	Check the communication lines (SCL_AV3/SDA_AV3 or SCL_AV/SDA_AV).
		MPX		MPX	IC communication line between MPX and MAIN	IC4402, IC8401	Check the communication lines (SCL_AV3/SDA_AV3 or SCL_AV/SDA_AV).
		Main VDEC	MA-IC	M-VDEC	IC communication line between M_VDEC and MAIN	IC5101, IC8401	Check the communication lines (SCL_AV3/SDA_AV3 or SCL_AV/SDA_AV).
Blue 8	Failure in IC communication with the main microcomputer	AD/PLL		ADC	IC communication line between ADC and MAIN	IC5301, IC8401	Check the communication lines (SCL_MA/SDA_MA).
		HDMI		HDMI	IC communication line between HDMI_RX and MAIN	IC5401, IC8401	Check the communication lines (SCL_MA/SDA_MA).
		CCD		CCD	IC communication line between CCD and MAIN	IC4601, IC8401	Check the communication lines (SCL_TXT/SDA_TXT).
		64K EEPROM		MA-EEP	IC communication line between EEPROM and MAIN	IC8409, IC8401	Check the communication lines (SCL_EP/SDA_EP).
		VOLUME IC		AUDIO	IC communication line between VOL_IC and MAIN	IC3753, IC8401	Check the communication lines (SCL_AUDIO/SDA_AUDIO).
		VOLUME IC		AUDIO	Periphery of the cable between A2 and M9	CN3752, CN4007	Check if cables are firmly connected.
			MAIN	-	Communication line between IF and MAIN	IC3301, IC38303, IC8304, IC8401	Check the communication lines (TXD, IF/RXD, IF/CLK, IF/BUSY, IF/CE, IF/REQ, IF).
			FAN	-	Dirt attached to the fan motor	CN4009	Check the fan.
				-	Periphery of the cable between fan and M4	IC8407	Check if cables are firmly connected.
				-	Periphery of the fan control regulator	-	-
Blue 9	Failure in communication with the main microcomputer and unknown	-	MAIN	-	Temperature sensor or its periphery	TH8901, Q8901	A shutdown is generated if TEMP2 becomes higher than 53°C
Blue 10	Failure in the fan	-	FAN	-	Periphery of the temperature sensor	TH8901, Q8901	TEMP2
Blue 11	High temperature of the unit	-	TEMP2	-	Periphery of the cable between T2 and M7	CN8802, CN4004	Check if cables are firmly connected.
Blue 12	Digital Tuner			PS/RST	Startup of IC6301	IC6301	Check startup of BCM7038 and the communication line between IC6301 and MAIN.
			DTUNER	DEVICE	Communication line between MAIN and IC6301	IC6301	Check startup of BCM7038 and the communication line between IC6301 and MAIN.
				TV-G	Startup of the TV-GUIDE application	IC6301	Check startup of the TV-GUIDE application. (*)
				HOME-G	Startup of the HOME-G application	IC6301	Check BCM7038 and its peripheral devices.
Blue 13	Failure in the POWER SUPPLY Unit	DC-DC converter power decrease	MA-PWR	M-DCDC	DC-DC converter or its periphery, RST2	IC4102, Q4106	Check if V + 3.3 V is started.
		POWER SUPPLY		RELAY	The 12 V power is not output, RST4	-	Check if V + 12 V is started.
					Periphery of the cable between P8 and M2	CN4002	Check if cables are firmly connected.

(\*) : Check if it becomes banner display when switching channel.

# ■ CAUSE OF THE SD (SHUT DOWN) AND THE DISPLAY CONTENTS OF OSD

Cause of Shut Down (MAIN)		Subcategory of Cause of Shut Down (SUB)	
Item	OSD Display	Item	OSD Display
Drive Sequence Process IC	SQ-IC	Communication Error	RTRY
		Drive Sequence Stop	SQNO
		Communication Busy	BUSY
		Version Mismatching	VER-HS
MDU-IIC	MD-IIC	MAIN EEPROM Communication Error	EEPROM
		BACKUP EEPROM Communication Error	BACKUP
		DAC Communication Error	DAC
High temperature of the panel	TMP-NG	Temperature NG	TEMP

## 5.4 NON-FAILURE SYMPTOMS

### Information on symptoms that do not constitute failure

Symptom	Cause, item to check, information
<b>HDMI: Symptoms concerning the input format and settings</b>	
The picture color for an INPUT 5 or 6 signal is not correct.	The color setting for INPUT 5 or 6 is not compatible with that of the output equipment. Check whether the color setting is YPbPr or RGB.
The video signal to INPUT 5 or 6 is not displayed, and a message is displayed.	A unsupported video signal is input. Example: 1080p @ 60Hz
The audio signal input to the INPUT 5 or 6 pin jack is not output.	The audio setting for INPUT 5 or 6 is "AUTO," and a video signal is not input. If the audio setting is "AUTO," to output an analog audio signal, the DVI signal must be input via a DVI-HDMI conversion cable. When the DVI equipment is connected, the analog signals are selected with the setting "AUTO."
No sound of signals to INPUT 5 or 6 is output.	The setting on the side of the HDMI output equipment is wrong. Example: Dolby Digital
<b>MONITOR video output</b>	
The video output signal from the MONITOR connector is deteriorated. Or when the video output signal from the MONITOR connector is recorded, its playback picture is deteriorated.	The video signal output from the MONITOR connector is Macrovision protected.
The video signal is not output when the component signal is input to INPUT 2, 3, or 4.	The video signal is not output from the MONITOR connector when the component signal is selected.
The video signal is not output when the video signal is input to INPUT 5 or 6.	The video signal is not output from the MONITOR connector when the HDMI signal is selected.
<b>MONITOR audio output</b>	
The image displayed on the PDP is not synchronized with the sound from the MONITOR audio output.	The audio signal from the MONITOR connector is synchronized with the video output signal from the MONITOR connector.
<b>DIGITAL audio output</b>	
Playback of the signal from the DIGITAL audio output connector is possible, but recording is not possible.	The video signal output from the DIGITAL connector is copy-protected.
The video output signal from the DIGITAL connector is not synchronized with that from the MONITOR video output.	The digital audio output signal from the DIGITAL connector is synchronized with the video signal that is currently displayed, and not with the MONITOR video output.
<b>Miscellaneous</b>	
The no-signal off function is not activated.	The no-signal off function is effective only while a video signal is being input.
The no-operation off function is not activated.	The no-operation off function is effective only while a video signal is being input.
Power management does not function.	Power management is effective only while a signal is being input from a PC.
The AUTO SETUP function is not activated.	The AUTO SETUP function is effective only while a signal is being input from a PC.
The G-Link system is not activated.	Wrong connection of the cable to the SR connector or PC audio connector is suspected.
Control via the SR connector is not possible.	A failure in the G-Link system or wrong connection of the cable to the PC audio connector is suspected.
The audio signal from the PC is not output.	A failure in the G-Link system or wrong connection of the cable to the SR connector is suspected.
The picture-quality setting (AV Selection) is not stored.	The picture-quality setting is stored for each input. As the setting is changed when another input is selected, the user may have a false idea that the setting is not stored.
The picture size changes arbitrary.	The Auto Size setting is set to ON (default is OFF).
The display position of the screen slightly changes every time the unit is turned on.	The orbiter function for minimizing the effects of phosphor burn is activated. As ON/OFF of this function can only be changed on the Integrator menu, turning off of this function by a user is not possible.
The video signal to the S video connector is not displayed.	Although S video input is selected on the menu, the cable is connected via a component video input connector whose function type is the same as S video input.
The video signal to the composite video connector is not displayed.	Although the composite video input is selected on the menu, the cable is connected via a component video connector or S video connector whose function type is the same as the composite video input.

#### SUPPLEMENT: On the video setting for HDMI

There are three types of HDMI output formats: color difference 4:4:4, color difference 4:2:2, and RGB4:4:4.

(The proportions, such as 4:4:4 and 4:2:2, represent those of the amount of data for video signal components. For example, as for color difference 4:4:4, the proportion of the amount of data as for Y, Cb, and Cr is 4:4:4.)

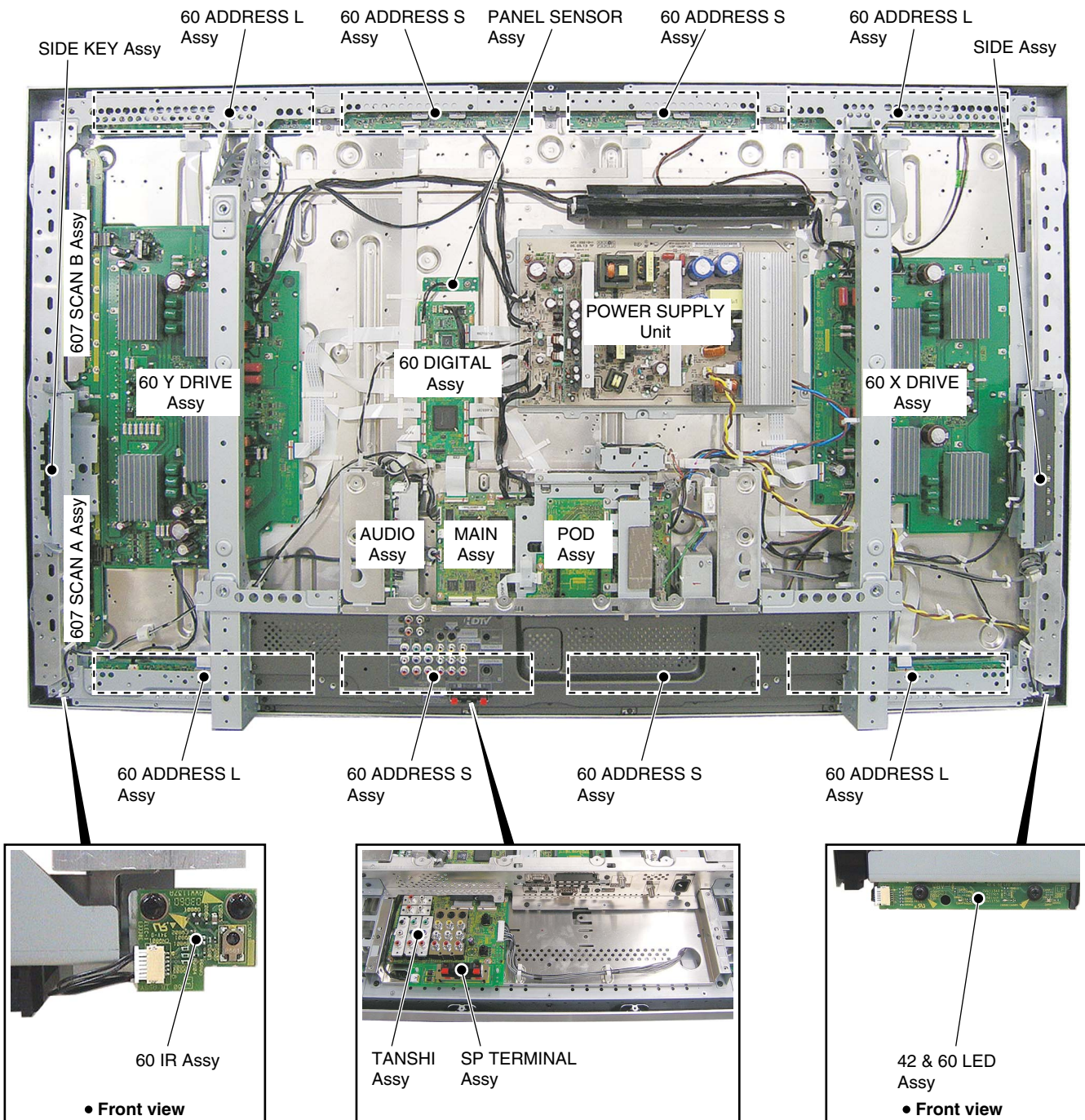
It is required to make the settings of the PDP according to the settings of the output equipment. For usual operation, however, set them to AUTO. If the color is inappropriate, make the settings manually.

In the HDMI system, video signals are coded at 24 bits per pixel and transmitted as a series of 24-bit pixels. In a case of color difference 4:4:4, Y, Cb, and Cr use 8 bits each. In a case of color difference 4:2:2, Y, Cb, and Cr use 12 bits each, but Cb and Cr are transmitted at a half sampling rate of Y. This unit is capable of processing the upper 10 bits out of 12 bits of video data. Recent high-end DVD players, such as Pioneer DV-79AVi, are capable of outputting 10-bit color-difference signals. In general, it is said that picture quality for color difference 4:2:2 format is assumed to be higher, because human eyes are more sensitive to luminance than to colors. In the case of RGB4:4:4, R, G, and B use 8 bits each.



# 6. DISASSEMBLY

## 6.1 PCB LOCATION



• Rear view

1234

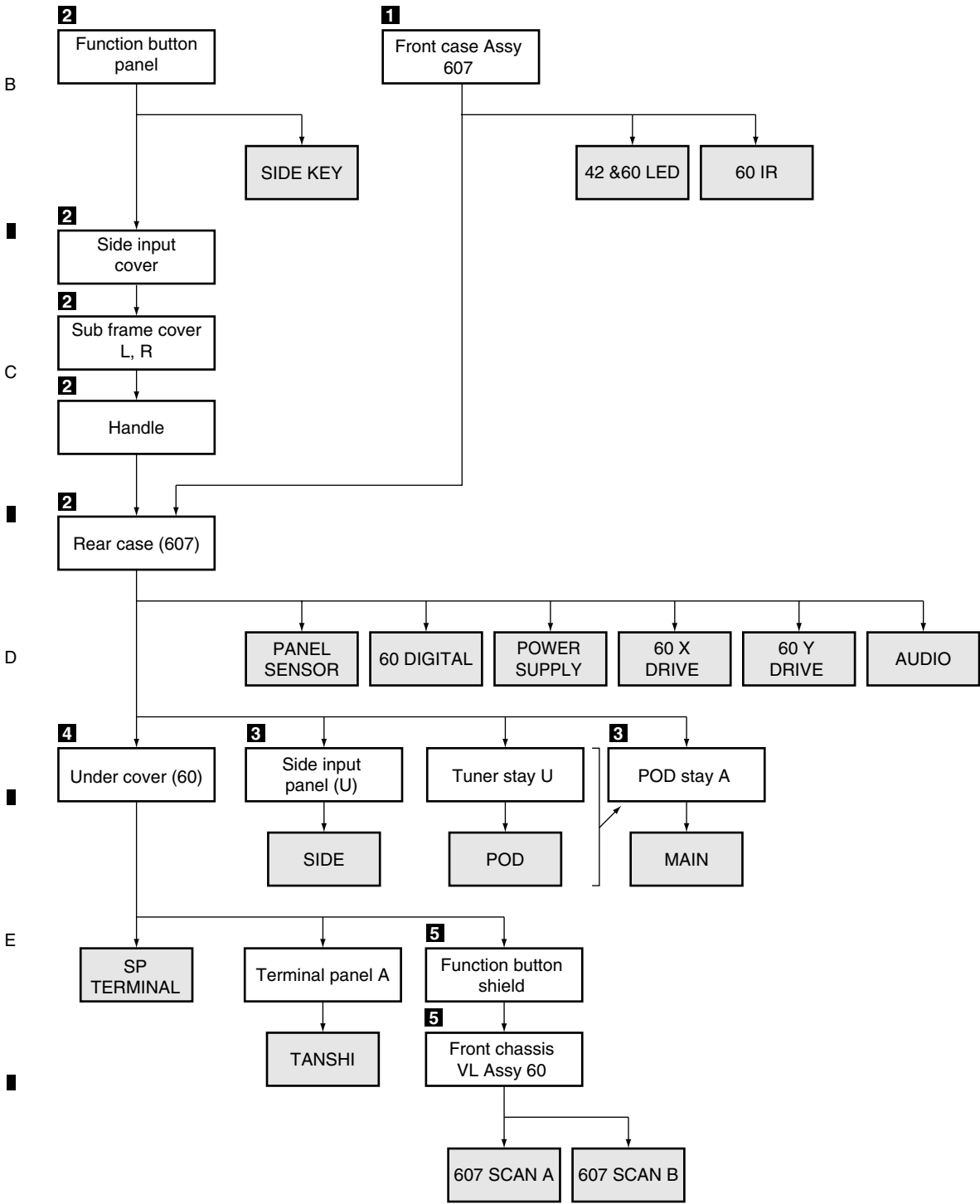
6.2 FLOWCHART OF THE MAIN PARTS AND PC BOARDS EXCHANGE

A

**Note:** Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Chart of removal order for the main parts and boards

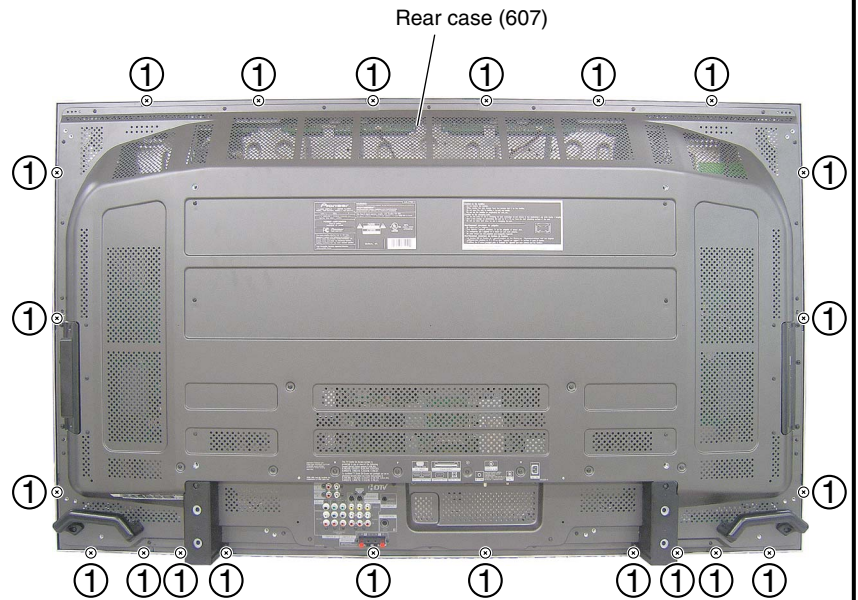
It is efficient to proceed with removal of the main parts and boards in the order shown in the chart below:



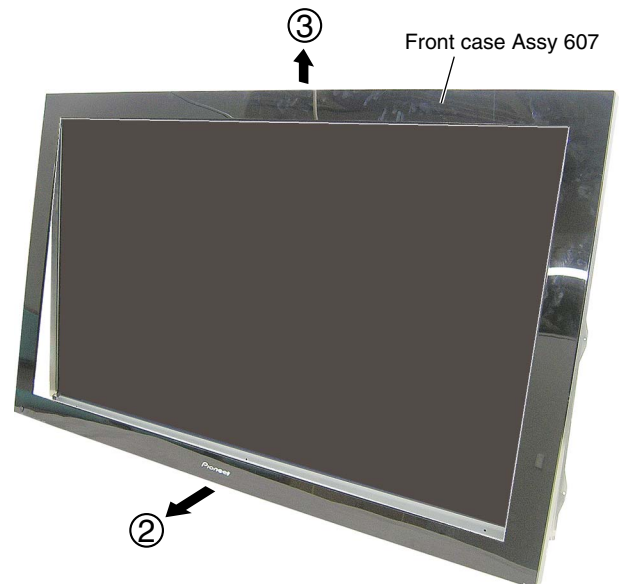
## Disassembly

### 1 Front Case Assy 607

- ① Remove the 22 screws. (APZ30P100FTB)



- ② Pull the lower part of the Front case Assy 607 toward you and out.  
③ Remove the Front case Assy 607, by pulling it upward.





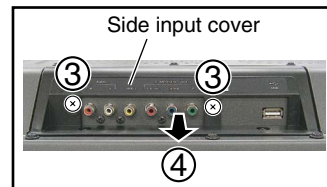
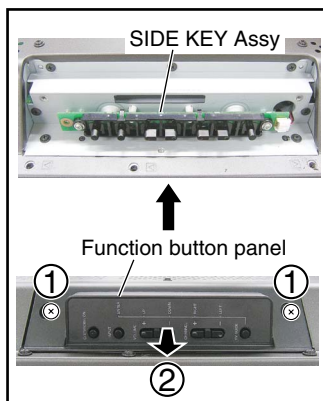
## 2 Rear Case (607)

### ● Function button panel

- ① Remove the two screws.
- ② Remove the function button panel.

### ● Side input cover

- ③ Remove the two screws.
- ④ Remove the side input cover.



### ● Sub frame cover L and R

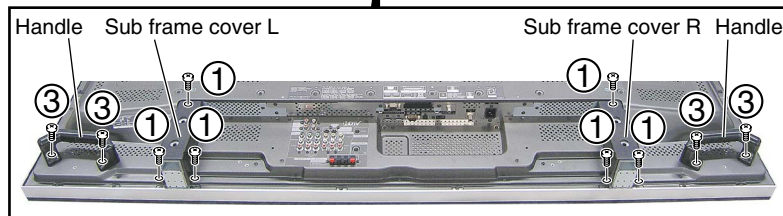
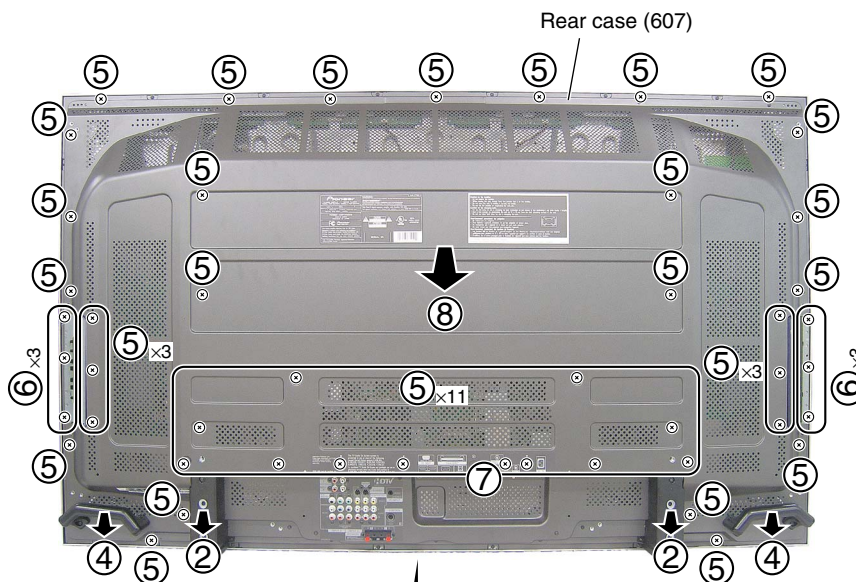
- ① Remove the six screws. (PMB30P100FTB)
- ② Remove the sub frame covers L and R.

### ● Handle

- ③ Remove the four screws. (PMB40P120FTB)
- ④ Remove the two handles.

### ● Rear case (607)

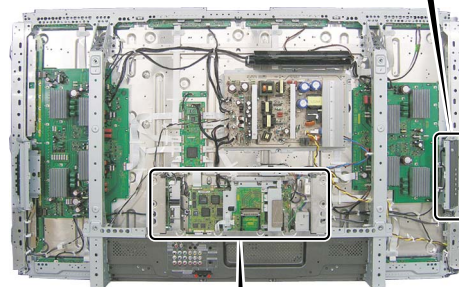
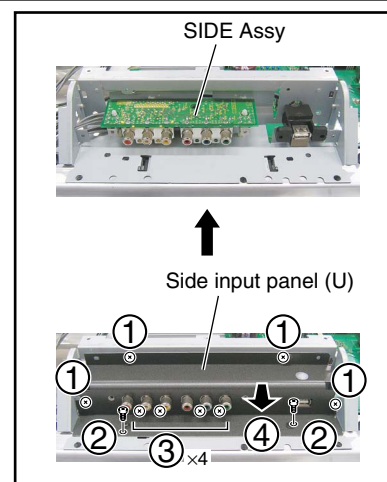
- ⑤ Remove the 40 screws. (AMZ30P060FTB)
- ⑥ Remove the six screws. (APZ40P100FTB)
- ⑦ Remove the one screw. (ABA1341)
- ⑧ Remove the rear case (607).



### 3 Access to PCB Assys

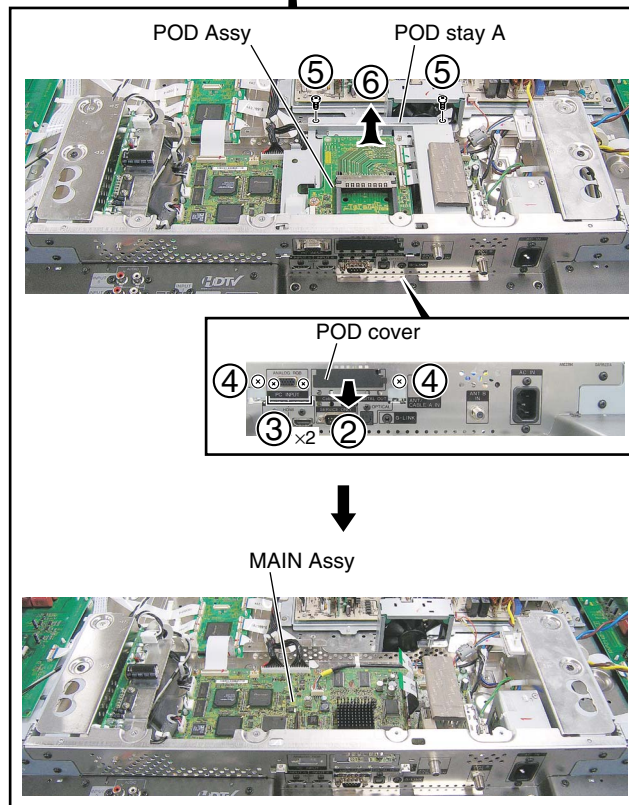
#### ● SIDE Assy

- ① Remove the four screws.
- ② Remove the two screws.
- ③ Remove the four screws.
- ④ Remove the side input panel (U).



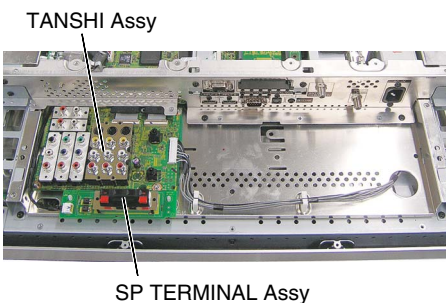
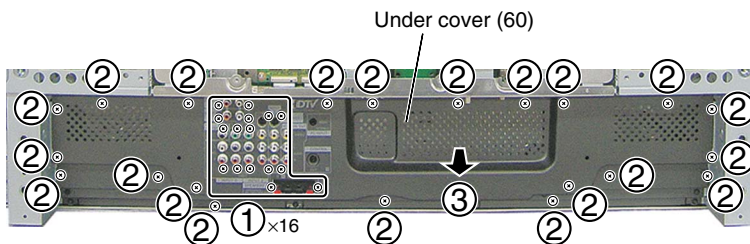
#### ● MAIN Assy

- ① Disconnect cables, connectors, as required.
- ② Remove the POD cover.
- ③ Remove the two hex. head screws.
- ④ Remove the two screws.
- ⑤ Remove the two screws.
- ⑥ Remove the POD stay A with PCB.



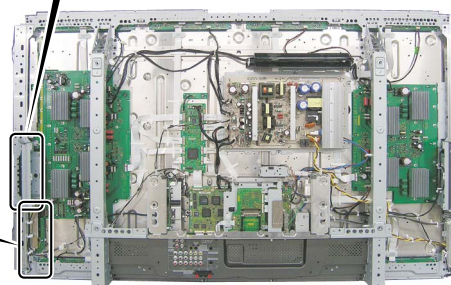
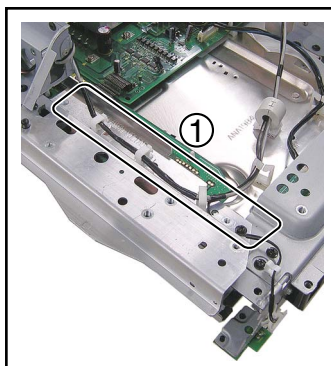
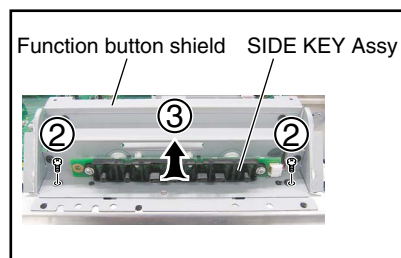
#### 4 Under Cover (60)

- ① Remove the 16 screws.
- ② Remove the 21 screws.
- ③ Remove the under cover (60).



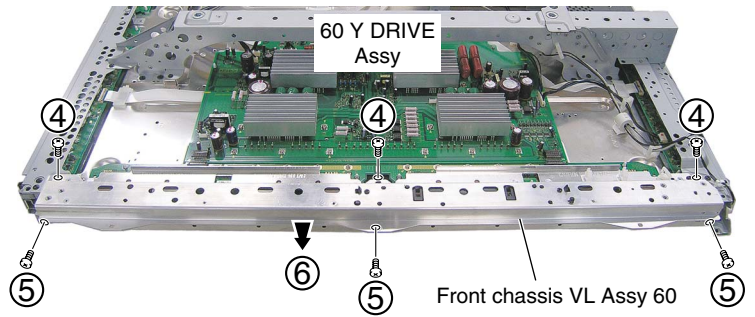
#### 5 Exchange of 607 SCAN A and B Assys

- ① Loosen the jumper wire.
- ② Remove the two screws.
- ③ Remove the function button shield with PCB.

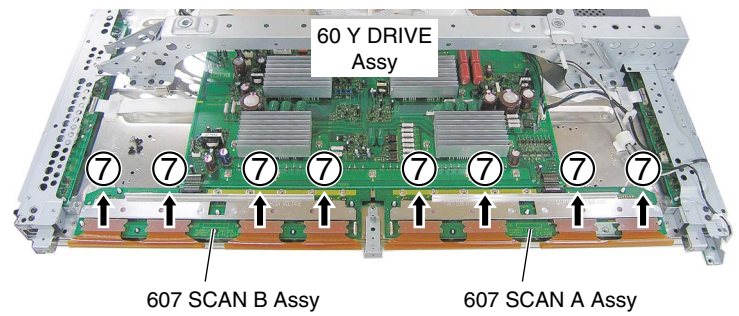




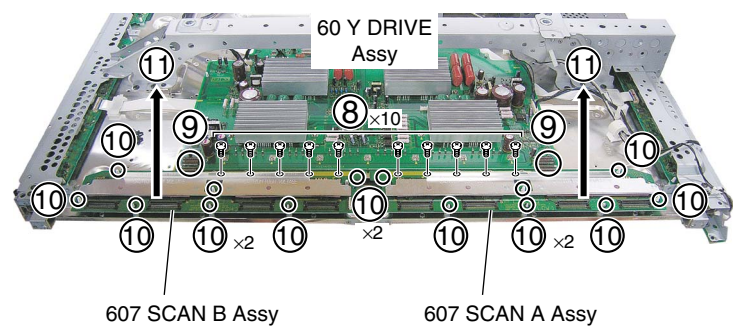
- ④ Remove the three screws.
- ⑤ Remove the three screws.
- ⑥ Remove the front chassis VL Assy 60.



- ⑦ Disconnect the eight connectors.



- ⑧ Remove the 10 screws.
- ⑨ Disconnect the two pin connectors.
- ⑩ Disconnect the 14 spacers.
- ⑪ Remove the 607 SCAN A and B Assys.



**Exchange**

# 7. ADJUSTMENT

## 7.1 PARTS CHANGE OF NOTES



1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

## 7.2 ADJUSTMENT REQUIRED WHEN THE SET IS REPAIRED OR REPLACED

### ■ When any of the following assemblies is replaced

POWER SUPPLY Unit	➡	Refer to "7.7 HOW TO CLEAR HISTORY DATA" and "7.8 PROCEDURE WHEN REPLACING THE POWER SUPPLY UNIT".
60 DIGITAL Assy	➡	Writing of backup data is required. Refer to the "7.4 BACKUP WHEN THE PANEL UNIT IS ADJUSTED. "
60 X DRIVE Assy	➡	No adjustment required
60 Y DRIVE Assy	➡	No adjustment required
607 SCAN A Assy	➡	No adjustment required
607 SCAN B Assy	➡	No adjustment required
Service Panel Assy	➡	Refer to "7.5.1 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED" and "7.7 HOW TO CLEAR HISTORY DATA".
MAIN Assy (*)	➡	No adjustment required
SENSOR Assy	➡	Writing of backup data is required. Refer to the "7.4 BACKUP WHEN THE PANEL UNIT IS ADJUSTED. "
TANSHI Assy	➡	No adjustment required

#### Note: Checking the Cable Card ID

The PDP has a slot for a cable card that is used for managing your information by the cable TV company. The following procedure allows you to check your Cable Card ID and the Host ID.

1. Press HOME MENU.
2. Select "Tuner Setup". (⬆/⬇ then ENTER)
3. Select "Channel Setup". (⬅/➡ then ENTER)
4. Select "POD ID". (⬆/⬇)
  - The Host ID and Cable Card ID appear.
5. Press HOME MENU to exit the menu.

(\*) : When replacing the MAIN Assy, be sure to do the FINAL SETUP.



## 7.3 ADJUSTMENT REQUIRED WHEN PART IS REPLACED

### Notes on replacing parts

For the parts described in the list below, replacement is required for the whole Assy, not only the defective part.  
If any part listed below is identified as defective and needs replacement, replace the whole Assy, and make necessary adjustments after replacement.

**Reason:** The whole Assy must be replaced, because adjustments and data rewriting for the Assy at the level of production line are required.

PCB Assy No.	Function Name	Parts that Require Whole-Assy Replacement		
		Ref No.	Function Name	Part No.
AWW1190	60 DIGITAL Assy	IC3151	Module microcomputer	AGC1011
		IC3401	Sequence IC	PEG122C
		IC3301	Flash memory	AGC1026
		IC3156	EEPROM	BR24L04FJ-W
AWW1191	SENSOR Assy	IC3652	EEPROM	BR24L02FJ-W
AWV2312	MAIN Assy	IC4701	AV switch	R2S11002AFT
		IC4901	RGB switch	R2S11001FT
		IC5101	Main VDEC	UPD64015GM-UEU
		IC5301	A/D converter	AD9985KSTZ-110
		IC6201	System IC	BCM3517KQLGB0
		IC6602	DDR-SDRAM	EDD2516AKTA-6B
		IC6603	DDR-SDRAM	EDD2516AKTA-6B
		IC6604	DDR-SDRAM	EDD2516AKTA-6B
		IC6605	DDR-SDRAM	EDD2516AKTA-6B
		IC6902	NOR Flash	AGC1008
		IC8202	Flash ROM	AGC1007
		IC8402	Flash ROM	AGC1006

POWER SUPPLY Unit

The assembly must be replaced as a unit, and no part replacement is allowed.

MAIN Assy (\*)

No adjustment is required after replacement of parts other than those mentioned above.

60 DIGITAL Assy

No adjustment is required after replacement of parts other than those mentioned above.

60 X DRIVE Assy

After any of the parts shown below on the 60 X DRIVE or 60 Y DRIVE Assy are replaced, a waveform adjustment is required.

60 Y DRIVE Assy

#### Object parts

Assy	Ref. No.	Part Category	Part No.
60 X DRIVE Assy	IC1206	Photo Coupler	PS9117-TLB
	IC1207	FET Driver	TND307TD-TBB
	IC1210	FET Driver	TND307TD-TBB
60 Y DRIVE Assy	IC2242	Photo Coupler	PS9117-TLB
	IC2241	FET Driver	TND307TD-TBB
	IC2252	FET Driver	TND307TD-TBB

Refer to "7.6 ADJUSTMENTS WHEN THE DRIVE ASSY ARE REPLACED".

60 ADDRESS Assy

No adjustment required

SENSOR Assy

No adjustment is required after replacement of parts other than those mentioned above.

TANSHI Assy

No adjustment required

(\*) : When replacing the MAIN Assy, be sure to do the FINAL SETUP.

## 7.4 BACKUP WHEN THE PANEL UNIT IS ADJUSTED

### ■ Outline

Adjustment data are stored in the EEPROM (IC3156/4K) on the DIGITAL Assy in the production process. Those adjustment data are also automatically stored in the EEPROM (for backup: IC3652) on the SENSOR Assy. If the DIGITAL Assy is replaced, those adjustment data for backup can be copied from the EEPROM on the SENSOR Assy to a new DIGITAL Assy.

### ■ Backed up data

- Drive voltage adjustment value
- Hour-meter count
- Pulse-meter count
- Panel white balance adjustment value
- Serial No.
- Drive waveform adjustment value
- P-ON counter value
- PD/SD histories

### ■ How to copy backup data

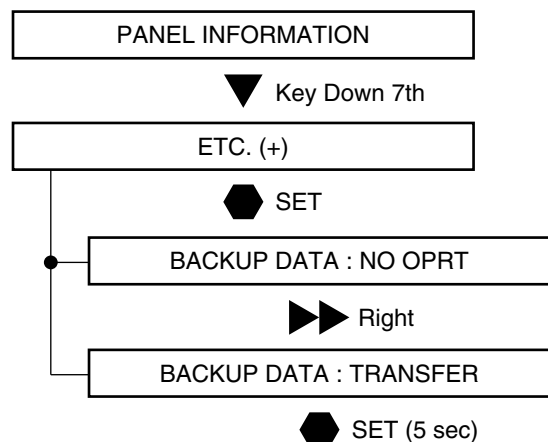
#### 1. When the DIGITAL Assy is replaced with one for service (usual service)

Adjustment data can be restored by copying the data backed up in the SENSOR Assy to the EEPROM on a new DIGITAL Assy.

The EEPROM on the new DIGITAL Assy has no adjustment data, and the EEPROM for backup in the SENSOR Assy has adjustment data. After replacing the DIGITAL Assy, enter PANEL FACT. mode, display the PANEL INFORMATION page, then check if "NO DATA!" is set for "DIG. EEP" and "ADJUSTED" is set for "BACKUP". Then, proceed in the following steps:

##### (1) Copying, using the Factory menu

- ① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
- ② Turn on the power, using the remote control unit, then enter Panel Factory mode.  
Copy the backup data, as shown in the figure below.



- ③ Turn the power off.
- After the DIGITAL Assy is replaced with one for service, be sure to check if "NO DATA!" is set for "DIG. EEP" on the PANEL INFORMATION page of the PANEL FACT. mode.
- If copying of the backup data fails in the above procedure, the red LED lights, and the blue LED flashes, as a warning that no backup data were copied.
- If both the DIGITAL and SENSOR Assys are to be replaced, first replace the SENSOR Assy, turn the unit on and back off again, then replace the DIGITAL Assy.

##### (2) Copying, using the RS-232C commands

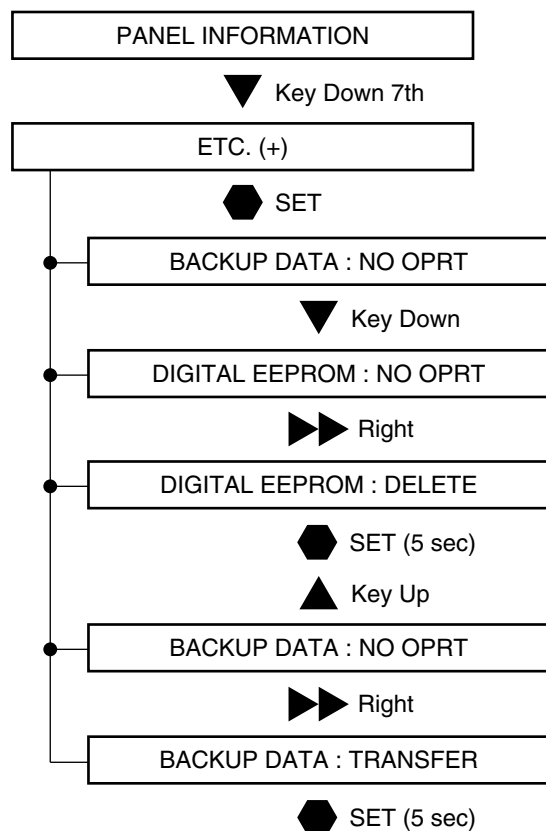
- ① Switch the RS-232C/SR+ setting to RS-232C so that RS-232C commands can be received.
- ② Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
- ③ Issue the BCP command to transfer the data stored in the EEPROM for backup.
- ④ Turn the power off.

## 2. When a secondhand DIGITAL Assy that had been mounted in another product is to be reused

As adjustment data for another product are already stored in the secondhand DIGITAL Assy, first delete those data then copy the backup data stored in the EEPROM on the SENSOR Assy.

### (1) Copying, using the Factory menu

- ① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
- ② Turn on the power, using the remote control unit, then enter Panel Factory mode.  
Copy the backup data, as shown in the figure below.



- ③ Turn the power off.

#### Note:

If the secondhand DIGITAL Assy is mounted in the product then the unit is turned on then back off again, the data in the EEPROM on the DIGITAL Assy are copied over the EEPROM in the SENSOR Assy. Thus the backup data can never be restored. During the first power-on after the DIGITAL Assy is replaced, be sure to enter Factory mode to copy the backup data. Or, before removing the secondhand DIGITAL Assy from the original product, delete the adjustment data on it, using the Factory mode (DIGITAL EEPROM: DELETE), mount it to the product to be repaired, then copy the data from the backup EEPROM.

### (2) Copying, using the RS-232C commands

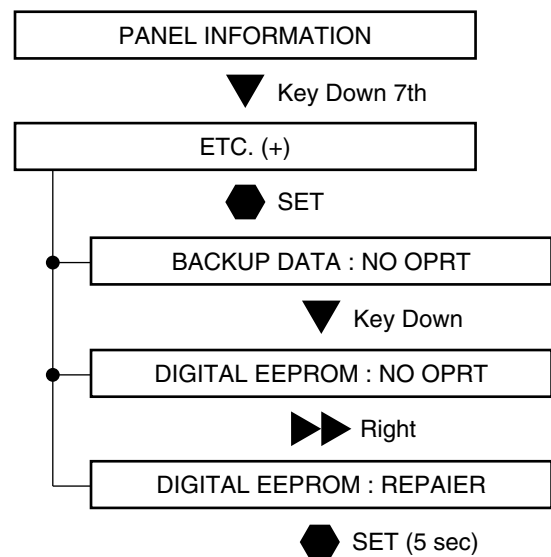
- ① Switch the RS-232C/SR+ setting to RS-232C so that RS-232C commands can be received.
- ② Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
- ③ Issue the UAJ command to delete data stored in the EEPROM on the DIGITAL Assy.
- ④ Issue the BCP command to transfer the data stored in the EEPROM for backup.
- ⑤ Turn the power off.

### 3. In a case where normal backup data are not stored in the backup EEPROM because the EEPROM on the DIGITAL Assy is defective, etc., and where manually adjusted values are to be applied to the product

**Note:** In this section, it is assumed that settings for various items have been completed, using Factory menu or RS-232C commands.

#### (1) Method using the Factory menu

- ① Set various setting/adjustment values.
- ② Proceed in the following steps.



- ③ Turn the power off.

#### **Note:**

When a DIGITAL Assy with an EEPROM in which adjustment data are stored is mounted, this step is not required after manual adjustment. ("DIGITAL EEPROM: REPAIR" is not indicated.)

#### (2) Method using the RS-232C commands

Issue the FAJ command.

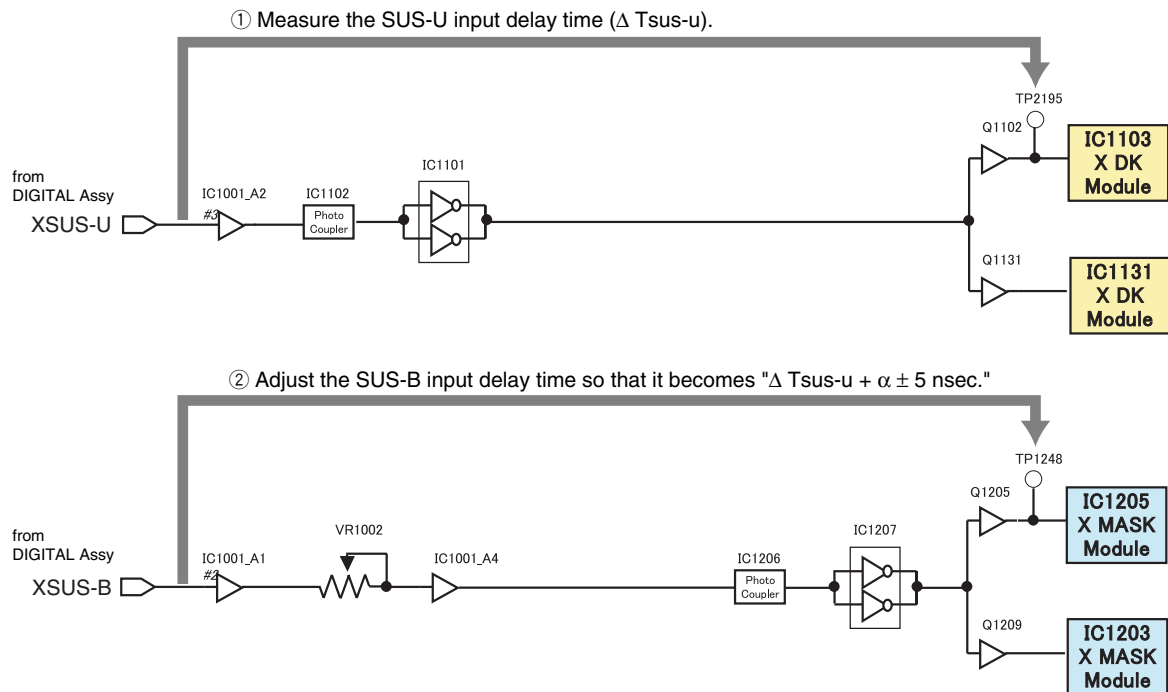
## 7.5 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED

### 60 X DRIVE Assy

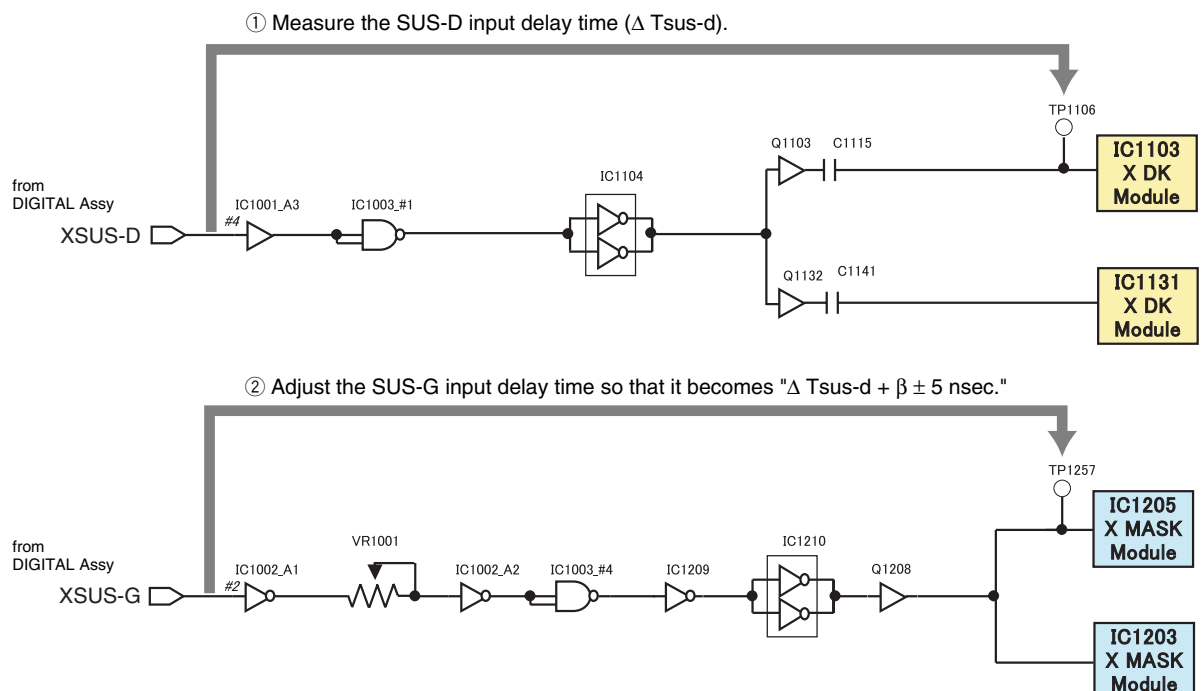
#### Object parts

Ref. No.	Part Category	Part No.
IC1206	Photo Coupler	PS9117-TLB
IC1207	FET Driver	TND307TD-TBB
IC1210	FET Driver	TND307TD-TBB

#### SUS-B ADJUSTMENT



#### SUS-G ADJUSTMENT



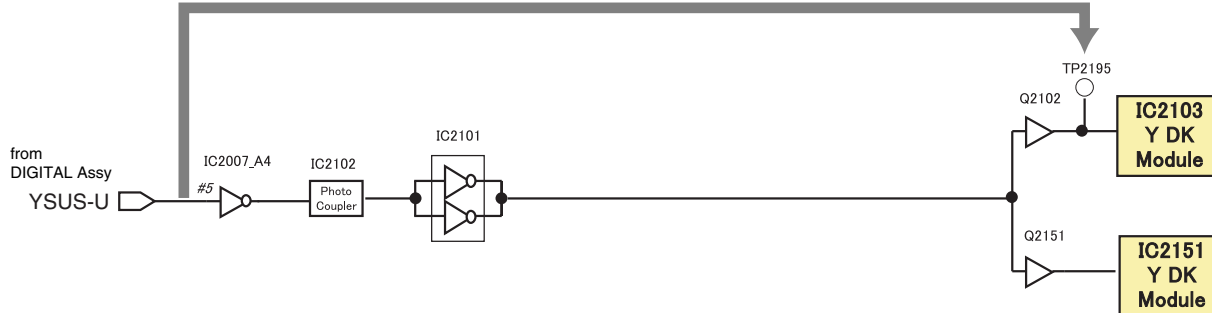
## 60 Y DRIVE Assy

### Object parts

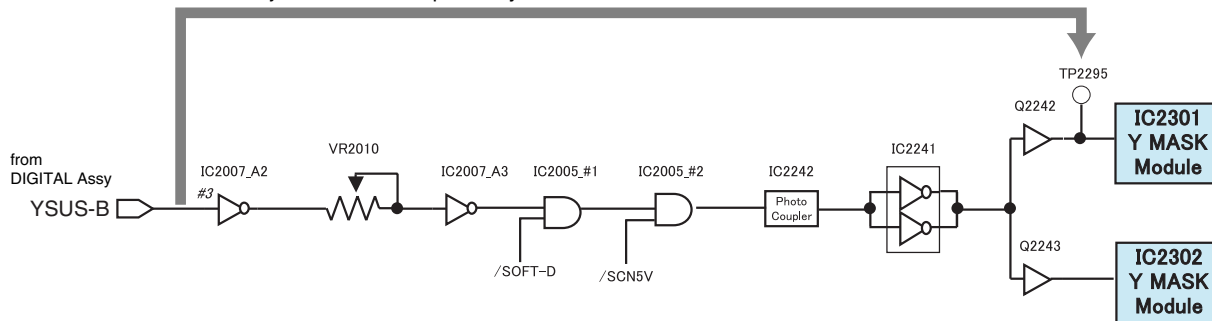
Ref. No.	Part Category	Part No.
IC2242	Photo Coupler	PS9117-TLB
IC2241	FET Driver	TND307TD-TBB
IC2252	FET Driver	TND307TD-TBB

### SUS-B ADJUSTMENT

① Measure the SUS-U input delay time ( $\Delta T_{sus-u}$ ).

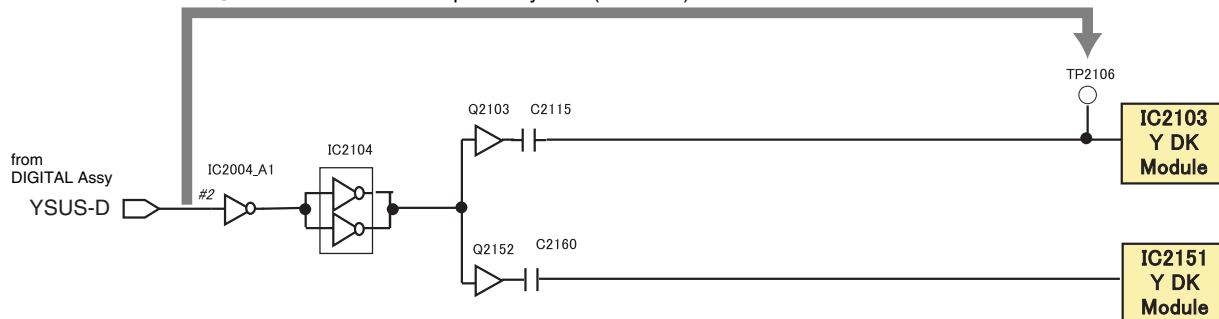


② Adjust the SUS-B input delay time so that it becomes " $\Delta T_{sus-u} + \alpha \pm 5 \text{ nsec.}$ "

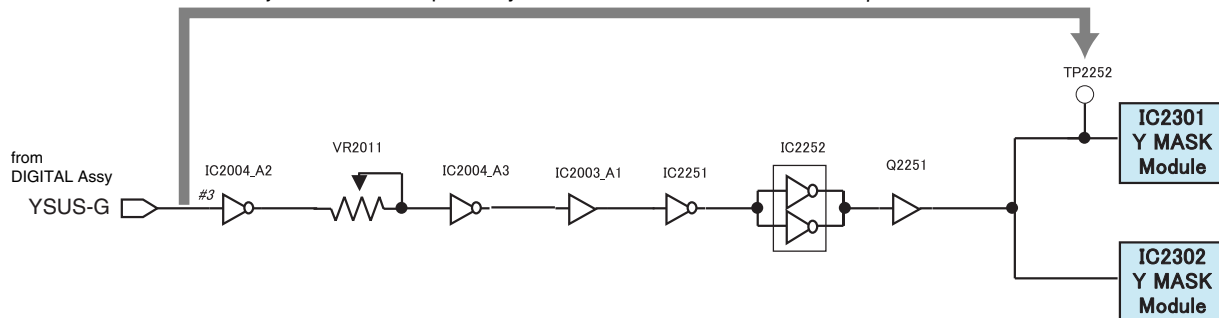


### SUS-G ADJUSTMENT

① Measure the SUS-D input delay time ( $\Delta T_{sus-d}$ ).



② Adjust the SUS-G input delay time so that it becomes " $\Delta T_{sus-d} + \beta \pm 5 \text{ nsec.}$ "



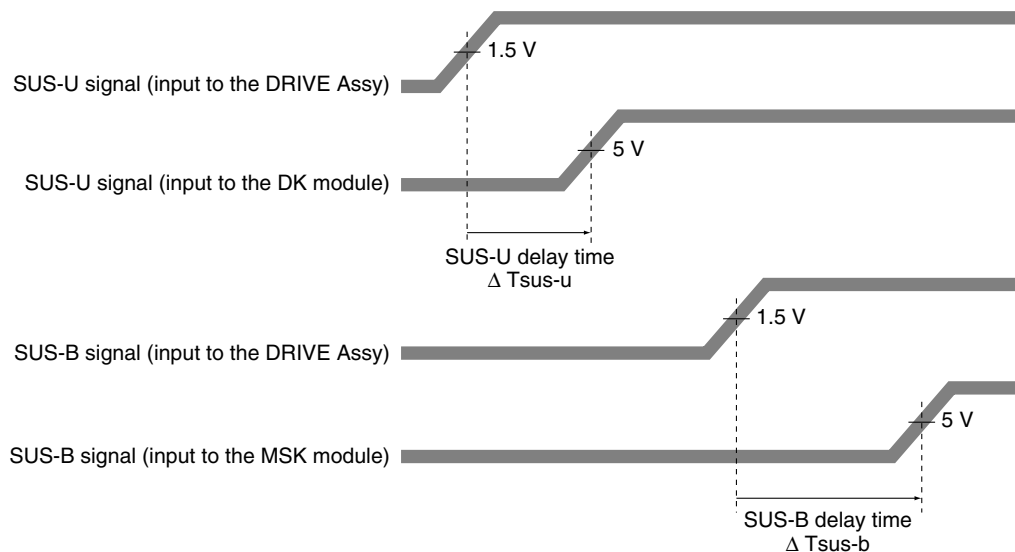
## DELAY ADJUSTMENT OF THE CONTROL SIGNAL (SUS-B)

① Measure the delay time for the SUS-U signal.

② Check the delay time for the SUS-B signal.

Adjust the variable control so that the SUS-B delay time becomes "SUS-U delay time +  $\alpha \pm 5$  nsec."

**Note:** For details on measuring points of waveform, see the figure below.



### SUS-B delay time: $\Delta Tsus-b$

Adjust so that " $\Delta Tsus-b = \Delta Tsus-u + \alpha \pm 5$  nsec," using the variable controls shown in the table below:

Value of  $\alpha$

Assy	VR	Time
X DRIVE	VR1002	70 nsec
Y DRIVE	VR2010	85 nsec

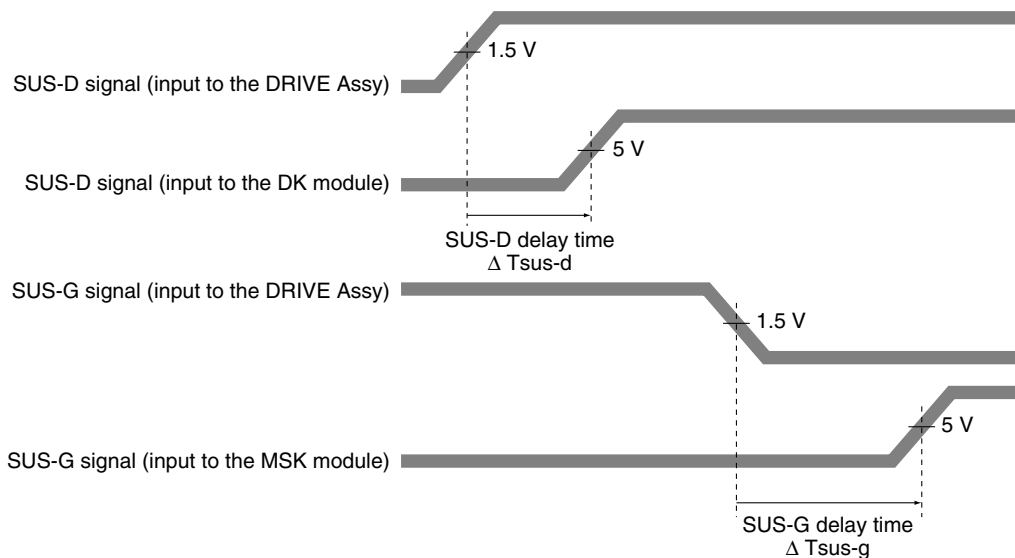
## DELAY ADJUSTMENT OF THE CONTROL SIGNAL (SUS-G)

① Measure the delay time for the SUS-D signal.

② Check the delay time for the SUS-G signal.

Adjust the variable control so that the SUS-G delay time becomes "SUS-D delay time +  $\beta \pm 5$  nsec."

**Note:** For details on measuring points of waveform, see the figure below.



### SUS-G delay time: $\Delta Tsus-g$

Adjust so that " $\Delta Tsus-g = \Delta Tsus-d + \beta \pm 5$  nsec," using the variable controls shown in the table below:

Value of  $\beta$

Assy	VR	Time
X DRIVE	VR1001	120 nsec
Y DRIVE	VR2011	100 nsec

## 7.6 HOW TO CLEAR HISTORY DATA

### ■ Clearance of various logs after the Assys are replaced

Besides adjustment data, data on accumulated power-on time and logs on defective parts of the product are backed up. Some of those data must be cleared after the Assys are replaced for service.

#### (1) Clearance of logs, using the RS-232C commands

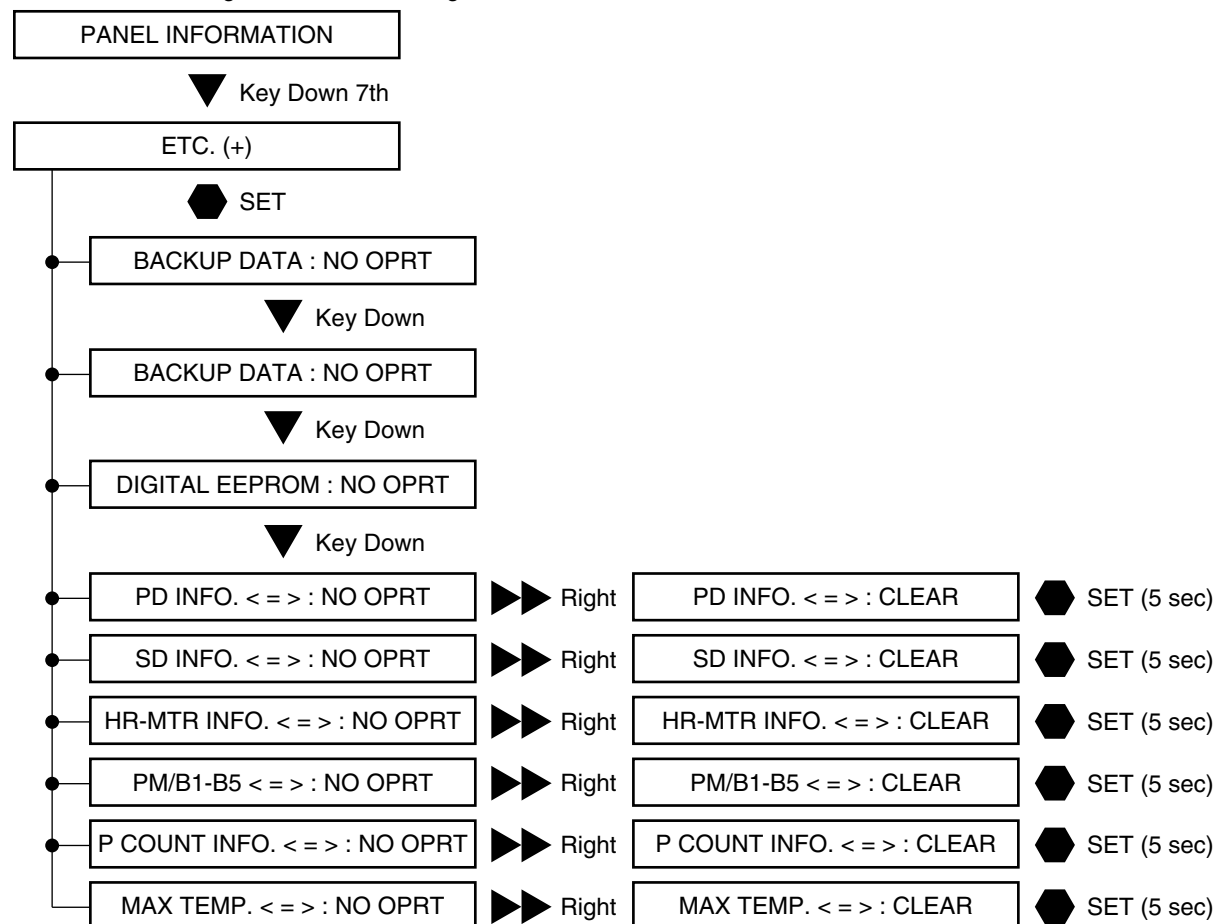
Item	Content	When the Panel is replaced	When the POWER SUPPLY Unit is replaced	When the Other parts is replaced	RS-232C Commands
Hour-meter	Accumulated power-on time	Must be cleared	No need to be cleared	No need to be cleared	CHM
Pulse-meter	Accumulated number of pulses emitted	Must be cleared (mandatory)	No need to be cleared	No need to be cleared	CPM
Shutdown history	Cause of an SD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CSD
Power-down history	Cause of an PD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CPD
Power-on counter	Relay-on count	No need to be cleared	Must be cleared (mandatory)	No need to be cleared	CPC
MAX TEMP	Historical max. temperature	Must be cleared	Must be cleared	Must be cleared	CMT

**Notes:**

- As the pulse-meter count is used for each correction function, it must be cleared when an Assy relevant to correction functions is replaced.
- When clearing logs, using the RS-232C commands, first enter Factory mode (by issuing FAY or PFY), then issue the corresponding command.

#### (2) Clearance of logs, using the Factory menu

- Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
- Turn on the power, using the remote control unit, then enter Panel Factory mode.  
Delete various logs, as shown in the figure below.



- Turn the power off.



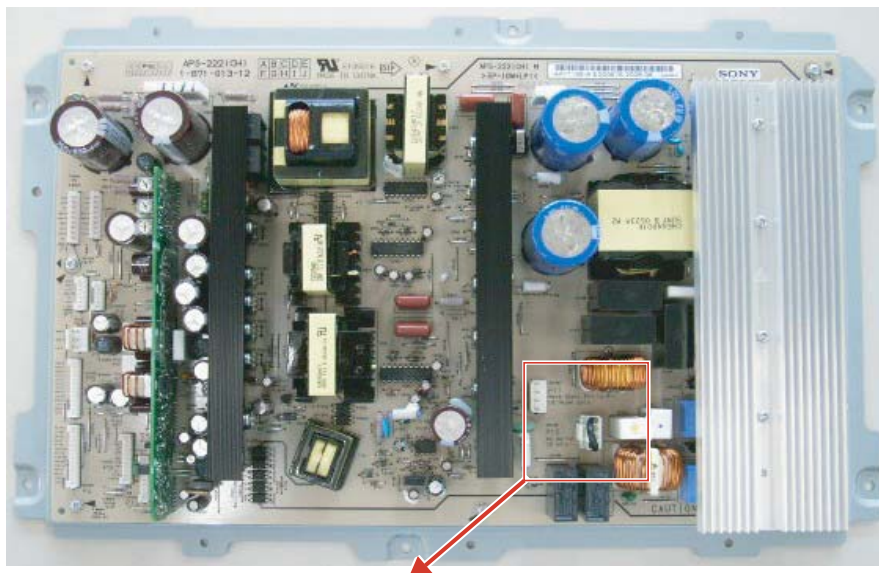
## 7.7 PROCEDURE WHEN REPLACING THE POWER SUPPLY UNIT

### ■ Procedure of Changing Jumper Connector after replacing the Power Supply Unit

When replacing the Power Supply Unit, it is necessary to perform the following connector changes.

Otherwise the unit cannot work properly and the unit may be damaged.

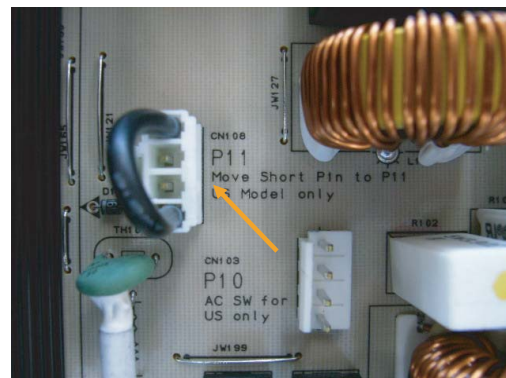
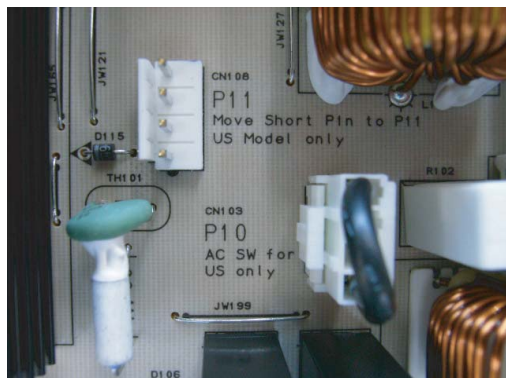
Therefore perform these connector settings without fail when replacing the Power Supply Unit. ( before power on the unit)



Location of the jumper connector

1. As for service parts, the Jumper connector is connected at connector P10.

2. Remove the jumper connector from connector P10 and connect it to connector P11.



3. Connect the cable connector from power SW to P10.

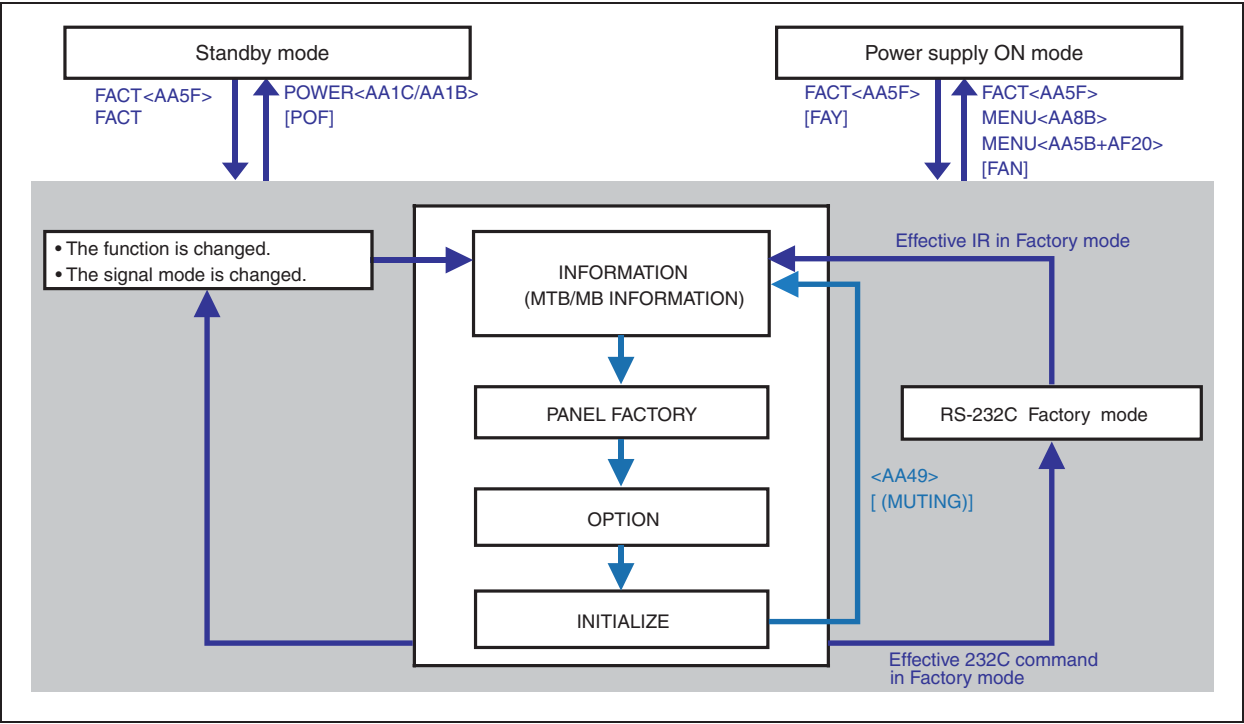


# 8. SERVICE FACTORY MODE

## 8.1 SERVICE FACTORY MODE OUTLINE

A Operations during Service/Factory mode are described here.

### 8.1.1 TRANSITION DIAGRAM OF SERVICE FACTORY MODE



### 8.1.2 HOW TO ENTER/EXIT SERVICE FACTORY MODE

#### How to enter Service Factory Mode and do it go out.

- How to enter Service Factory Mode.**
  - Case operated by remote control)
    - Service remote control : press[FACTORY1]key.
  - Case to RS-232C transmit command)
    - Standby mode : Send [PON]+[FAY] .
    - Power supply ON mode : Send[FAY] .

- How to come off Service Factory Mode.**
  - Case operated by remote control)
    - Service remote control : press [ FACTORY1 ] key.
    - Remote control : press [ HOME MENU ] key.
  - Case to RS-232C transmit command)
    - Send [FAN] .

### ■ Functions whose setting are set to OFF.

The settings for the following functions are set to OFF when Service Factory mode is entered (Including when the "FAY" command is received) :

No.	Function	Remarks
1	Two screen operation	Input function set on the main side is selected.
2	FREEZE	
3	Mask control	MTB/MB is none. It becomes processing on the PANEL side.
4	ORBITER	Central value operation.
5	Detection of the TRAP switch	The detection operation is stopped.
6	TRAP history	To a possible turning on though the memory is maintained.
7	Display of TV guide	
8	Setting of Parental Control	When this is turned off, the block of the screen is released.

Note) Enter the factory after canceling ACI because the ACI operation setting OFF and not done.

### ■ User data

User data will be treated as follows :

- User data on picture- and audio-quality adjustments are not reflected, and factory-preset data are output (user data will be retained in memory). When the unit enters Service Factory mode, the current audio-quality adjustment data will be still be retained in memory.
- As to data on various settings, user data will be applied to the items that are associated with signal format change (screenize switching, etc).
- Data on screen (i.e.,screen position; meaning clock dividers, and not including data on screen size) Are reset to the default values (data stored in memory will be retained). Screen size will be retained.

■ Remote control codes in Service Factory mode.

SR/R Keys	Basic Functions	Remarks
Muting	Switching the main items	Shifting to the next main item (top).
↓(DOWN)	Switching the subtitled items.	Shifting downward to the next subtitled item.
↑(UP)	Switching the subtitled items.	Shifting upward to the next upper layer.
←(LEFT)	Decreasing the adjustment value.	Decreasing the adjustment value.
→(RIGHT)	Increasing the adjustment value.	Increasing the adjustment value.
ENTER/SET	Switching the layers.	Shifting downward or upward to the next lower or upper layer.
INPUT	Selecting INPUT.	Shifting the INPUT to the next function.
INPUTxx	Selecting INPUT.	Switching the INPUT to xx. (xx=1-6 etc)
CH+/P+	Increasing the channel number.	Advancing.
CH-/P-	Decreasing the channel number.	
Numeric keys	Function: TV	Function: TV(previously selected channel number is selected).
POWER	Power OFF	Turning the power off.
FACTORY	Factory OFF(Factory mode) Factory ON(Non-Factory mode)	In Factory mode , turning Factory mode off. In Non-Factory mode , turning Factory mode on.
HOME MENU *1	Menu ON.	In Factory mode , turning Factory mode off, and Menu mode on.
VOLUME+	Volume UP.	Increasing 10 the adjustment value. (PANEL FACTORY)
VOLUME-	Volume DOWN.	Increasing 10 the adjustment value. (PANEL FACTORY)
DRIVE ON/OFF *2	Drive Mode OFF.	Turning Drive mode off.
INTEGRATOR *1	INTEGRATOR MENU ON	Enter INTEGRATOR MODE.

[ Note ] \*1 : A pertinent key that exists in the service remote control, becomes effective only in the factory and integrator mode.  
Please use the remote control of the attachment when you normally operate it in the mode (home menu operation, etc.).  
\*2: When ten seconds have passed since the [ DRIVE ON/OFF ] key was pressed at the standby, it becomes invalid.  
Please press [ POWER ] key from the [ DRIVE ON/OFF ] key pressing within ten seconds when you do power supply ON while driven OFF.

Remote Control Unit  
for Servicing



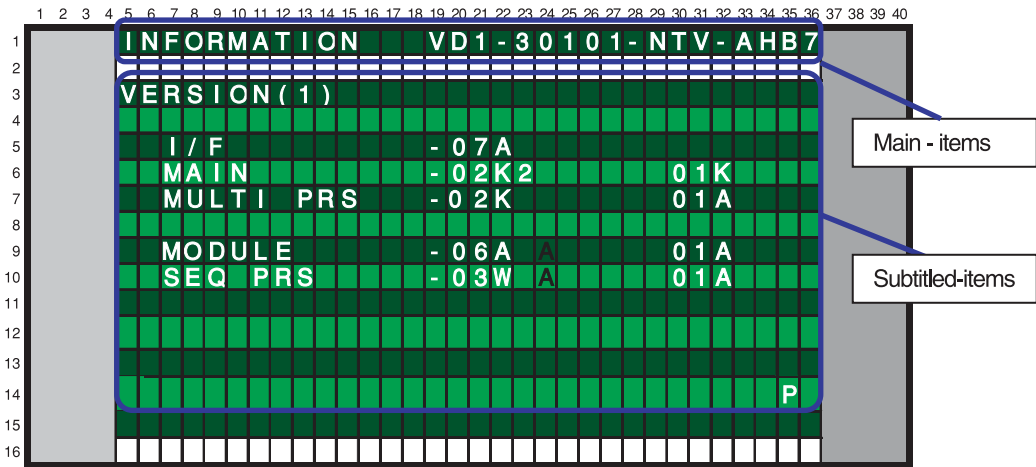
## 8.1.5 CONFIGURATION OF FACTORY MODE

### ■ Configuration of G7 Factory mode

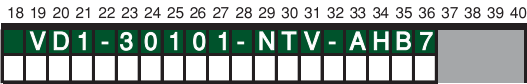
Main item	Submode Name	Submode item	Adjustable Range	Remarks
<b>8.2.1 INFORMATION</b>				
	1 VERSION (1)			
	2 VERSION (2)			
	3 VERSION (3)			
	4 MAIN NG	CLEAR <=>	OFF<=>ON	
	5 TEMPERATURE			
	6 HOUR METER	MTB HOUR METER	OFF<=>ON	
	7 HDMI SIGNAL INFO 1			
	8 HDMI SIGNAL INFO 2			
	9 VDEC SIGNAL INFO			
	10 DTV TUNING STATUS1			
	11 DTV TUNING STATUS2			
	12 DTV TUNING STATUS3			
	13 DTV TV-GUIDE BER			for technical analysis
	14 DEBUG INFO			for technical analysis
<b>8.2.2 PANEL FACTORY (+)</b>				
	1 PANEL INFORMATION			
	2 PANEL WORKS			
	3 POWER DOWN			
	4 SHUT DOWN			
	5 PANEL-1 ADJ (+)			
		X-SUS B ⇔	120 to 136	
		Y-SUS B ⇔	120 to 136	Equivalent to YSB
		Y-SUSTAIL T1 ⇔	120 to 136	Equivalent to YTG
		Y-SUSTAIL T2 ⇔	120 to 136	Equivalent to YTB
		Y-SUSTAIL W ⇔	120 to 136	Equivalent to YTW
		XY-RST W1 ⇔	120 to 136	Equivalent to RSW
		XY-RST W2 ⇔	120 to 136	Equivalent to RYW
		VOL SUS ⇔	000 to 255	Equivalent to VSU
		VOL OFFSET ⇔	000 to 255	Equivalent to VOF
		VOL RST P ⇔	000 to 255	Equivalent to VRP
		SUS FREQ. ⇔	MODE1-MODE8	Equivalent to SFR
	6 PANEL-2 ADJ (+)			
		R-HIGH ⇔	000 to 511	Equivalent to PRH
		G-HIGH ⇔	000 to 511	Equivalent to PGH
		B-HIGH ⇔	000 to 511	Equivalent to PBH
		R-LOW ⇔	000 to 999	Equivalent to PRL
		G-LOW ⇔	000 to 999	Equivalent to PGL
		B-LOW ⇔	000 to 999	Equivalent to PBL
		ABL ⇔	000 to 255	Equivalent to ABL
	7 PANEL REVISE (+)			
		R-LEVEL ⇔	LV-0 to LV-7	Equivalent to RRL
		G-LEVEL ⇔	LV-0 to LV-7	Equivalent to RGL
		B-LEVEL ⇔	LV-0 to LV-7	Equivalent to RBL
	8 ETC (+)			
		BACKUP DATA ⇔	NO OPRT ⇔ TRANSFER or ERR	Equivalent to BCP
		DIGITAL EEPROM ⇔	NO OPRT ⇔ DELETE/REPAIR	Equivalent to FAJ/UAJ
		PD INFO. <=>	NO OPRT ⇔ CLEAR	Equivalent to CPD
		SD INFO. <=>	NO OPRT ⇔ CLEAR	Equivalent to CSD
		HR-MTR INFO. ⇔	NO OPRT ⇔ CLEAR	Equivalent to CHM
		PM/B1-B5 <=>	NO OPRT ⇔ CLEAR	Equivalent to CPM
		P COUNT INFO. ⇔	NO OPRT ⇔ CLEAR	Equivalent to CPC
		MAX TEMP. ⇔	NO OPRT ⇔ CLEAR	Equivalent to CMT
	9 RASTER MASK SETUP (+)			
		MASK OFF		Equivalent to MKS+S00
		RST MASK 01 ⇔	⇔ 48V ⇔ 50V ⇔ 60V ⇔	Equivalent to MKS+S51
		...	60P ⇔ 70P ⇔ 72V ⇔ 75V ⇔	...
		RST MASK 24 ⇔		Equivalent to MKS+S74
	10 PATTEN MASK SETUP (+)			
		MASK OFF		Equivalent to MKS+S00
		PTN MASK 01 ⇔	⇔ 48V ⇔ 50V ⇔ 60V ⇔	Equivalent to MKS+S01
		...	60P ⇔ 70P ⇔ 72V ⇔ 75V ⇔	...
		PTN MASK 39 ⇔		Equivalent to MKS+S39
	11 COMBI MASK SETUP (+)			
		MASK OFF		Equivalent to MKC+S00
		CMB MASK 01 ⇔	⇔ 48V ⇔ 50V ⇔ 60V ⇔	Equivalent to MKC+S01
		CMB MASK 10 ⇔	60P ⇔ 70P ⇔ 72V ⇔ 75V ⇔	...
				Equivalent to MKC+S10
<b>8.2.3 OPTION</b>				
	1 EDID WRITE MODE ⇔		OFF ⇔ ON	for production line
	2 ANTENNA MODE ⇔		CABLE ⇔ AIR	for production line
	2 AFT ⇔		OFF ⇔ ON	for production line
<b>8.2.4 INITIALIZE</b>				
	1 SYNC DET (+)			for technical analysis
	2 SG MODE ⇔		SG OFF⇔...	
	3 SG PATTERN ⇔		SG PATTERN⇔COLORBAR1...	
	4 SIDE MASK LEVEL (+)			
		R MASK LEVEL ⇔	000 to 255	
		G MASK LEVEL ⇔	000 to 255	
		B MASK LEVEL ⇔	000 to 255	
	5 FINAL SETUP (+)			
		DATA RESET ⇔	OFF ⇔ ON	
	6 HMG/HG SERVICE MODE	MODE SHIFT ⇔	OFF ⇔ ON	
	7 CVT AUTO ⇔			for technical analysis
	8 HDMI INTR POSITION (+)			
		INTR-POS1(0x75) ⇔	000 to 255	for technical analysis
		INTR-POS2(0x76) ⇔	000 to 255	for technical analysis
		INTR-POS3(0x77) ⇔	000 to 255	for technical analysis
		INTR-POS4(0x78) ⇔	000 to 255	for technical analysis

8.1.6 INDICATION (OSD) OF SERVICE FACTORY MODE

■ Indications in Service Factory mode



■ Main-item indications



①	Input function
②	SIG mode and Screen size
③	Color system and Signal type
④	Option

Input function	
Input function	OSD
VIDEO1-6	VD1-6
Terrestrial Wave A	ARA
Terrestrial Wave B	ARB
Cable A	CBA
Cable B	CBB
Home Gallery (Regular)	HG
Home Media Gallery (ELITE)	HMG
PC	PC

SIG mode and Screen size	
Note: See SIG-Mode Tables.(See next page.)	

Color system and Signal type		
Color system and signal type		OSD
NTSC	Composite input	NTV
	S-connector input	NTS
Y/CB/CR		CBR
Y/PB/PR		PBR
RGB		RGB
Digital video signal		DIG

Option(Destination, Panel Generation, etc)	
Options	OSD
SX System in North America(Regular)	ATB7
SX system in North America(ELITE)	AHB7

## ②SIG Mode and Screen Size (by User is displayed)

1-2nd Character: SIG-Mode (resolution)

3-4th Character: SIG-Mode (refresh rate)

5th Character: Setting of the screen size that user configured

### ■SIG-Mode table for video signals (resolutions and V frequencies)

1-4th Character		Signal Type	Vertical Frequency Fv (Hz)	Horizontal Frequency Fh (kHz)
10	60	SDTV*525i	60.000	15.750
20	60	SDTV*525p	60.000	31.500
30	60	HDTV*1125i	60.000	33.750
40	60	HDTV*750p	60.000	45.000
50	24	HDTV*1125p	24.000	27.000

### ■SIG-Mode table for PC signals (resolutions and V frequencies)

1-4th Character		Signal Type	Vertical Frequency Fv (Hz)	Horizontal Frequency Fh (kHz)
C1	70	720x400	70.087	31.469
C2	60	640x480	59.940	31.469
	72		72.809	37.861
	75		75.000	37.500
C4	56	800x600	56.250	35.1556
	60		60.317	37.879
	72		72.188	48.077
	75		75.000	46.875
C7	60	1024x768	60.004	48.363
	70		70.069	56.476
	75		75.029	60.023
C9	60	1360x768	60.015	47.712

### ■Selection of the screen size by the user is displayed.

5th Character	GUI Notation	VIDEO	PC	Remark
0	DOT BY DOT	×	●	
1	4:3	●	●	
2	FULL (FULL1)	●	●	
3	ZOOM	●	×	
4	CINEMA	●	×	
5	WIDE	●	×	
8	FULL2	●	●	

●: supported, ×: unsupported

1 2 3 4

## 8.2 FACTORY MENU

### 8.2.1 INFORMATION

A

#### ■Operation items

B

No.	Function/Display	Context	RS232C
1	VERSION(1)	The Flash memory versions for each device are displayed. (Common Part)	QS1
2	VERSION(2)	The Flash memory versions for each device are displayed. (Individual Part)	QS6
3	VERSION(3)	The Flash memory versions for each device are displayed. (Individual Part)	QS6
4	MAIN NG	The Shutdown Message ID/Event Times in Main Microcomputer are displayed.	QNG
5	TEMPERATURE	The Temperature/FAN rotating status are displayed.	QMT
6	HOUR METER	The HOUR METER/P-COUNT information are displayed.	QIP
7	HDMI SIGNAL INFO 1	The Information of HDMI information files are displayed.	-
8	HDMI SIGNAL INFO 2	The Information of HDMI information files are displayed.	-
9	VDEC SIGNAL INFO	Display the Signal Information on VDEC.	-
10	DTV TUNING STATUS 1	Digital broadcast information and status is displayed upon receiving digital broadcast signal.	-
11	DTV TUNING STATUS 2	Digital broadcast information and status is displayed upon receiving digital broadcast signal.	-
12	DTV TUNING STATUS 3	Digital broadcast information and status is displayed upon receiving digital broadcast signal.	-
13	DTV TV-GUIDE BER	TV-Guide Bit Error Rate Information	-
14	DEBUG INFO	Debug Information.	-

#### 8.2.1.1 Version(1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
1	INFORMATION																			VD1 - 30101 - NTV - AHB7																				
2	VERSION (1)																																							
3																																								
4																																								
5	I / F																			- 07A																				
6	MAIN																			- 02K2																			01K	
7	MULTI PRS																			- 02K																			01A	
8																																								
9	MODULE																			- 06A																			A	01A
10	SEQ PRS																			- 03W																			A	01A
11																																								
12																																								
13																																								
14																				P																				
15																																								
16																																								

E

Flash Device	Item Name	Ex.		Elite	Regular
		Executed program part	BOOT part		
IF microcomputer	I/F	-07A	—	○	○
MAIN microcomputer	MAIN	-02K2	01K	○	○
Multi processor	MULTI PRS	-02K2	01A	○	○
MODULE microcomputer	MODULE	-06A_A	01A	○	○
Sequence processor	SEQ PRS	-03W_A	01A	○	○

In the 29-32 rows, ROM version information on each device is displayed.  
In the 19-24 rows, Version information on a common treatment is displayed.  
At the position "14x35", The Past/Highly effective panel distinction information is displayed.  
" P " : The past panel, "F" : The highly effective panel



### 8.2.1.2 VERSION(2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
1	I N F O R M A T I O N																C B A - 3 0 6 0 1 - D I G - A H B 7																							
2																																								
3	V E R S I O N ( 2 )																																							
4																																								
5	D T V																																							
6	H A R D W A R E																X X X X X X X X																							
7	S E R I A L																0 1 2 3 4 5 6 7																							
8	R U N T I M E																X X X X X X X X																							
9	C F E																H H H H H H H H																							
10	K E R N E L																H H H H H H H H																							
11	R O O T F S																H H H H H H H H																							
12	F L A G S																H / W ( Y )																							
13																	D V R ( Y ) F O N T S ( Y )																							
14																	D F A S T ( Y ) P L O G ( Y )																							
15																																								
16																																								

Flash Device	Item Name	Ex.	Elite	Regular
DTVHardware Version	HARDWARE	XXXXXXXXX	○	○
DTV Hardware Serial	SERIAL	1234567	○	○
DTV Runtime Version	RUNTIME	XXXXXXXXX	○	○
CFE Version	CFE	HHHHHHHHH	○	○
KERNEL Version	KERNEL	HHHHHHHHH	○	○
ROOTFS Version	ROOTFS	HHHHHHHHH	○	○
FLAGS	FLAGS	H/W (Y)	○	○
		DVR (Y) FONTS(Y)	○	○
		DFTS (Y) PLOG (Y)	○	○

### 8.2.1.3 VERSION(3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
1	I N F O R M A T I O N															C B A - 3 0 6 0 1 - D I G - A H B 7																									
2																																									
3	V E R S I O N ( 3 )																																								
4																																									
5	C C D															M S K B																									
6	H M G / H G															0 1 2 3 4 5 6 7 8 9																									
7	P A S S W O R D															1 2 3 4																									
8																																									
9																																									
10																																									
11																																									
12																																									
13																																									
14																																									
15																																									
16																																									

Flash Device	Item Name	Ex.	Elite	Regular
CCD-UCOM Version	CCD	MSKB	○	○
HMG/HG module Version	HMG/HG	0123456789	○	○
User Password	PASSWORD	1234	○	○

## 8.2.1.4 MAIN NG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
1	INFORMATION															VD1- 30601-NTV-AHB7																								
2																																								
3	MAIN NG																																							
4	MAIN		SUB															00151H21M																						
5																																								
6	1		MA- IIC										FE2					00031H50M																						
7	2		MA- IIC										AV- SW					00013H03M																						
8	3		MA- SRL										D- SEL					00002H52M																						
9	4		MAIN										- - - - -					00001H58M																						
10	5		TEMP2										- - - - -					00000H07M																						
11	6																																							
12	7																																							
13	8																																							
14																																								
15																																								
16																																								

### MTB side's Shutdown NG information

OSD:MAIN	OSD:SUB	Cause of shutdown
AUDIO	----	Shortcircuit of Speaker terminal
MODULE	----	Failure of communication to Module microcomputer
MA-SRL		3-wire Serial Communication of Main microcomputer
	IF	- Communication failure of IF microcomputer
	MULTI1	- MANTA communication failure (MULTI1)
	I/P	- MANTA communication failure (I/P)
MA-IIC	D-SEL	- MANTA communication failure (D-SEL)
		IIC Communication failure of Main microcomputer
	FE1	- Analog Tuner 1 (Front End 1)
	FE2	- Analog Tuner 2 (Front End 2)
	MPX	- MPX
	AUDIO	- Volume IC
	AV-SW	- AV Switch
	RGB-SW	- RGB Switch
	M-VDEC	- Main VDEC
	ADC	- AD/PLL
	HDMI	- HDMI
	MA-EEP	- 64k EEPROM
	CCD	- CCD
MAIN		Communication failure of Main microcomputer & Unknown Error
FAN		Fan stopped
TEMP2		Abnormally high temperature
DTUNER		Failure of Digital Tuner
	PS/RST	- Failure to DTB Starting
	DEVICE	- DTB Device Error
	TV-G	- TV-Guide Error
	HOME-G	- Failure at Home Gallery
MA-PWR	M-DCDC	- Abnormally in RST2 of MAIN Assy (power decrease of DC-DC converter)
	RELAY	- Abnormally in RST4 of MAIN Assy (power decrease of Relay power)
HMG		Failure at Home Media Gallery
	START	-

#### 4.MAIN NG (Continued)

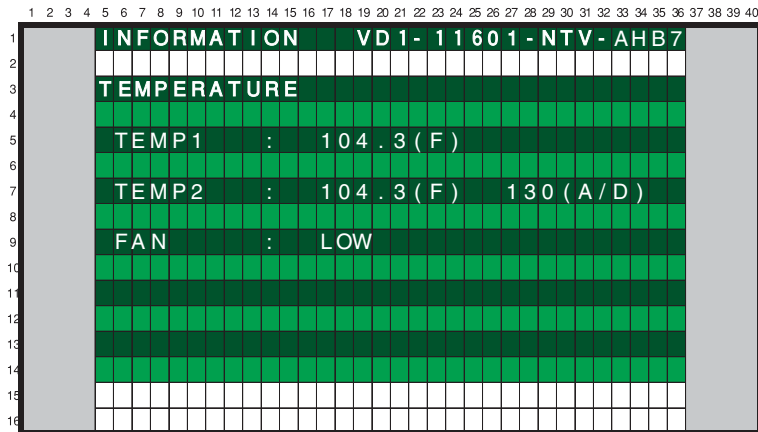
[illegible]

## ■ CLEAR Operation

Even if [ ← ] key or [ → ] key is pushed, "CLEAR ⇔ YES" ⇔ "CLEAR ⇔ NO" is repeated.  
If the [ ENTER ] key is kept on pressing for 5 second when the status of this menu is <YES>, clear process will begin.

## 8.2.1.5 TEMPERATURE

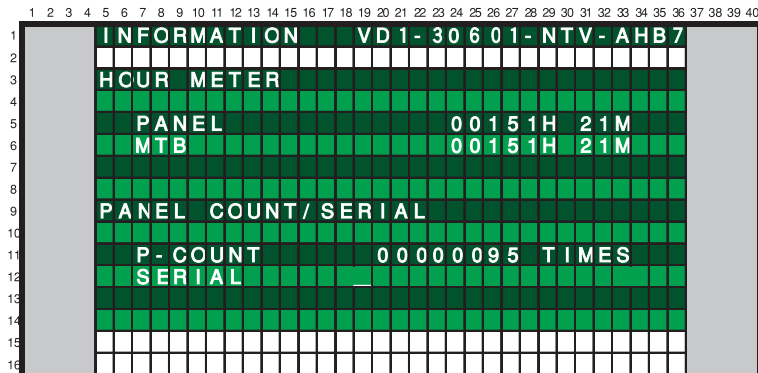
A A present temperature and the FAN rotation are displayed.  
If either [←] key or [→] key is pressed, the display data is refreshed.



### ■ Display/Meaning

TEMP1 : The temperature of the sensor on the panel side is displayed by Fahrenheit (F).  
TEMP2 : The temperature conversion display is done with 10bit the A/D input value of Main uCON 76PIN(AN0). It is displayed by both Fahrenheit (F) and 8bit A/D value.  
(Remark:When temperature (C) of the sensor becomes more than a specified temperature, the shutdown start of processing.)  
FAN : The value of the Fan rotating state is displayed.  
STOP:stopped, LOW:slow speed, HIGH:high speed.

## 8.2.1.6 HOUR METER



### ■ Operation:

E In HOUR METER screen on Factory Menu, press the [ENTER] key, and then it moves to the screen to clear MTB HOUR METER.

### ■ Display/Meaning:

Meaning	Item Name	Ex.	RS-232C command
HOUR METER(PANEL)	PANEL	00151H 21M	QIP
HOUR METER(MTB)	MTB	00151H 21M	QIP
POWER ON COUNTER	P-COUNT	00000095 TIMES	QIP
SYSTEM SERIAL	SERIAL		QIP

The SYSTEM SERIAL displays only FHD. It corresponds by sticking the seal in G7 model.

The PANEL-side's HOUR METER/P-COUNT acquires information from the PANEL-side.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
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13																																							
14																																							
15																																							
16																																							

#### ■ Operation:

Even if [←] key or [→] key is pushed, "CLEAR <=> YES" <=> "CLEAR <=> NO" is repeated.

If the [ENTER] key is kept on pressing for 5 second when the status of this menu is <YES>, clear process will begin.

### 8.2.1.7 HDMI SIGNAL INFO 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
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14																																							
15																																							
16																																							

#### ■ Displays the input signal information of HDMI terminal.

HDMI SIGNAL INFO 1		
SA	Context	
0x60	- 4E:	Video information: valid horizontal pixel numbers (low order bit)
	- 4F:	Video information: valid horizontal pixel numbers (high order bit)
	- 50:	Video information: valid vertical line numbers (low order bit)
	- 51:	Video information: valid vertical line numbers (high order bit)
	- 55:	Video information: interlace/non-interlace, sink polarity
0x68	- 2A:	Audio information: PCM/non PCM, copyright protected or not
	- 30:	Audio information: sampling frequency
	- 31:	Audio information: sampling bit rate
	- 44:	Audio information: color space
	- 45:	Video information: aspect ratio
	- 46:	Video information: scaling
	- 47:	Video information: video format
	- 48:	Video information: pixel count
	- 84:	Audio information: channel count
	- 85:	Audio information: not used (zero at all times)
	- 86:	Audio information: not used (zero at all times)
	- 87:	Audio information: speaker allocation
	- 88:	Audio information (down mix prohibit flag)
0x60	- 3A:	Video information: valid horizontal pixel numbers (low order bit)
	- 3B:	Video information: valid horizontal pixel numbers (high order bit)
	- 3C:	Video information: valid vertical line numbers (low order bit)
	- 3D:	Video information: valid vertical line numbers (high order bit)

## 8.2.1.8 HDMI SIGNAL INFO 2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
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12																																							
13																																							
14																																							
15																																							
16																																							

■ Displays input signal status of HDMI terminal.

Item	Meaning
H RES	Number of horizontal pixels (decimal)
V REES	Number of vertical lines (decimal)
H DE	Number of effectively horizontal pixels (decimal)
V DE	Number of effectively vertical lines (decimal)
INTRL	intetlace (=INT) or progressive(=PRG)
V POL	VSNC polarity
H POL	HSNC polarity
AUDIO (1 line)	sampling frequency (Ex. DVD : 48 kHz, CD : 44.1 kHz) *1
AUDIO (2 line)	PCM (PCM) or No PCM (=no PCM)
AUDIO (3 line)	Quantization bit
COL SP	color space (AVI Info) (422 or 444 or RGB) *2
COLMET	colormetry (AVI Info) (SD : 601, HD : 709) *2
ASPECT	aspect (AVI Info)
ACTIVE	video active format (AVI Info)
V FMT	video identification code (AVI Info)
PIX RP	pixel repeat value for 2880 dot
SOURCE (1line)	vender name of let-off device
SOURCE (2line)	model name of let-off device

\*1 : Confirm if this item is displayed when the audio is not outputted.

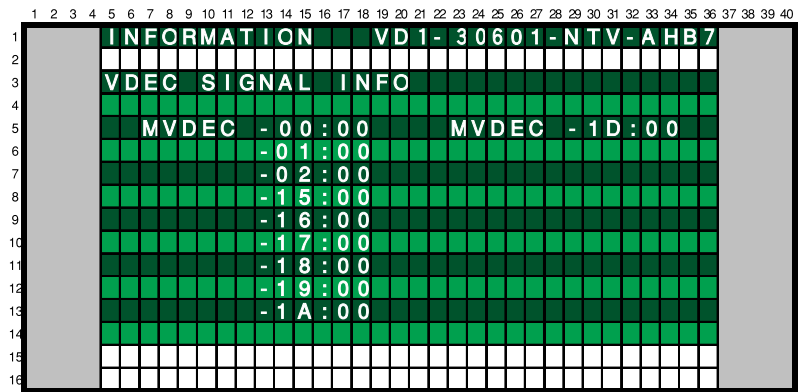
\*2 : It may not match to the state of source devices when the color is abnormal.

### Correspondence between the Display of HDMI FACTORY and the Resolution

Confirm the following 5 items when the video is not outputted.

Input Signal	Display of FACTORY				
	H RES	V RES	H DE	V DE	V FMT
480i (525i)	858	262 or 263	720	240	720x480i @ 60
480p (525p)	858	525	720	480	720x480p @ 60
1080i (1125i)	2200	562 or 563	1920	540	1920x1080i @ 60
720p (750p)	1650	750	1280	720	1280x720p @ 60

8.2.1.9 VDEC SIGNAL INFO



■Displays input signal status of MVDEC terminal.

Device	SA	Context
MVDEC	00h	Signal distinct result 1
	01h	Signal distinct result 2
	02h	Flag detection output
	15h	Noise level distinction 1
	16h	Noise level distinction 2
	17h	Non-standard signal detection
	18h	Sub carrier signal detection
	19h	ACC data output
	1Ah	ACC information output
	1Dh	Input signal mode

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
1	INFORMATION																CBA - 30601-DIG-AHB7																								
2																																									
3	DTV TUNING STATUS 1																																								
4																																									
5	INBAND FREQUENCY																				:	675MHz																			
6	MODULATION																				:	QAM 256																			
7	STATUS																				:	LOCK																			
8	AGC																				:	85%																			
9																																									
10	CORRECTED ERROR																				:	12345																			
11	UNCORRECTED ERROR																				:	678																			
12	TIME																				:	45sec																			
13																																									
14																																									
15																																									
16																																									

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
1	INFORMATION															CBA - 30601-DIG-AHB7																									
2																																									
3	DTV TUNING STATUS 2																																								
4																																									
5	PROGRAM NUMBER															:	3																								
6	VIDEO PID															:	201																								
7	AUDIO PID															:	202																								
8	PCR PID															:	201																								
9	VIDEO FORMAT															:	1080I/16:9																								
10																																									
11																																									
12																																									
13																																									
14																																									
15																																									
16																																									

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
1	I N F O R M A T I O N															C B A - 3 0 6 0 1 - D I G - A H B 7																									
2																																									
3	D T V T U N I N G S T A T U S 3																																								
4																																									
5	O C B F R E Q U E N C Y																				:	7 0 M H z																			
6	S T A T U S																				:	U N L O C K																			
7	A G C																				:	7 2 %																			
8																																									
9	C O R R E C T E D E R R O R																				:	1 2 3 4 5																			
10	U N C O R R E C T E D E R R O R																				:	6 7 8																			
11	T I M E																				:	4 5 s e c																			
12																																									
13																																									
14																																									
15																																									
16																																									



### ■ Operation Items

This is the menu screen for the adjustment of the panel. Data acquisition and value adjustment can be performed for the following items:

No.	Indication	Description of functions
8.2.2.1	PANEL INFORMATION	Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed.
8.2.2.2	PANEL WORKS	Operation data, such as accumulated pulse-meter count, accumulated hour-meter count, accumulated power-on count, and the temperature detected by the sensor, are displayed.
8.2.2.3	POWER DOWN	The power-down history is displayed, with the hour-meter values that indicate the hour values when power-downs occurred.
8.2.2.4	SHUT DOWN	The shutdown history is displayed, with the hour-meter values that indicate the hour values when shutdowns occurred.
8.2.2.5	PANEL-1 ADJ (+)	Settings of the driving pulse timing and driving voltage can be performed.
8.2.2.6	PANEL-2 ADJ (+)	White balance and ABL (power consumption) for the panel can be set.
8.2.2.7	PANEL REVISE (+)	The level for correction of panel degradation can be set.
8.2.2.8	ETC. (+)	Copying of backup data and clearance of various data can be performed.
8.2.2.9	RASTER MASK SETUP (+)	The mask indication (RASTER) can be set and indicated.
8.2.2.10	PATTEN MASK SETUP (+)	The mask indication (PATTERN) can be set and indicated.
8.2.2.11	COMBI MASK SETUP (+)	The mask indication (COMBI) can be set and indicated.

A

- In the following examples, GUI images for a 50-inch model are indicated. Although the display areas for the menu for 42-inch and 50-inch models are different, the items to be displayed are the same.

### 8.2.2.1 PANEL INFORMATION

- Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed. No other layers are nested below this layer, and there are no adjustment items.

Figure 1-10 illustrates the display area for 42-inch and 50-inch models. The diagram shows a grid of 32 columns and 16 rows. The display area is highlighted in green. The 42-inch model display area is 30 columns wide and 10 rows high. The 50-inch model display area is 32 columns wide and 16 rows high.

	1	5	10	15	20	25	30	32
1			PANEL FACT.		IN1-30602-RGB-JWM7			
		AREA 1	PANEL INFORMATION					
	2							
5	3		MODULE	-01A	M		01A	
	4		SEQ-PRG	-01Y			02A	
	5		VD-SEQ	520Y				
	6		PC-SEQ	520Y				
	7							
10	8		SERIAL					
	9							
	A		DIG.EEP		ADJUSTED			
	B		BACKUP		NO DATA I			
	C							
15	D							
16	E							

Display area for 42-inch model

Display area for 50-inch model

### ■ Key operation

- <DOWN> : Shifting to PANEL WORKS  
<UP> : Shifting to COMBI MASK SETUP  
(+)  
<L/R> : Updating displayed information

■ **Display items:**

- MODULE : The version of data written in the Module microcomputer (IC3151) is indicated.  
 SEQ-PRG : The version of data written in the Sequence Program Storage Memory (IC3301) is indicated.  
 VD-SEQ : The Drive Sequence version for Video mode is indicated.  
 PC-SEQ : The Drive Sequence version for PC mode is indicated.  
 SERIAL : The serial number of the module is indicated.  
 DIG.EEP : The adjusted status of the EEPROM that is mounted on the DIGITAL Assy is indicated.  
 BACKUP : The adjusted status of the EEPROM for backup that is mounted on the SENSOR Assy is indicated.

### 8.2.2.2 PANEL WORKS

- Data on operations, such as the accumulated pulse-meter counts, hour-meter count, power-on count, and temperature detected by the sensor, are sent back. No other layers are nested below this layer, and there are no adjustment items.

[illegible]

### ■ Key operation

- <DOWN> : Shifting to POWER DOWN  
<UP> : Shifting to PANEL INFORMATION  
<L/R> : Updating displayed information

- Temperature unit is " °C (Centigrade) ".

### ■ Contents of the Display item

- PM-B1 to B5: The accumulated pulse-meter counts for the 5 blocks on the screen are indicated. (the lowest-order digit represents millions of pulses.)
- HR-MTR: The hour-meter value (accumulated power-on hours) is indicated.
- P-COUNT: The accumulated power-on count is indicated.
- TEMP1: The current panel temperature and the historical maximum temperature recorded in memory are indicated. The range of temperature indication is from -50.0 to +99.9. (The temperature unit is " °C (Centigrade) ").

### 8.2.2.3 POWER DOWN

- The power-down history is displayed. The last most 8 power-down histories are displayed with the hour-meter values that indicate the hours when power-downs occurred. No other layers are nested below this layer, and there are no adjustment items.

		1	5	10	15	20	25	30	32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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#### ■ Key operation

- <DOWN> : Shifting to SHUT DOWN
- <UP> : Shifting to PANEL WORKS
- <L/R> : Updating displayed information

#### <Causes of power-down and corresponding OSD indications>

Cause of power-down	OSD Indication	Cause of power-down	OSD Indication
POWER SUPPLY Unit	P-PWR	ADDRESS Assy	ADRS
SCAN Assy	SCAN	X DRIVE Assy	XDRV
5V power for SCAN Assy	SCAN5V	DC/DC converter for X drive	X-DCDC
Y DRIVE Assy	YDRV	X-drive SUS circuit	X-SUS
DC/DC converter for Y drive	Y-DCDC	DC/DC converter	
Y-drive SUS circuit	Y-SUS	Specification inability	UNKNOWN

- \* When power-down is confirmed, the factor is displayed as "1st", "2nd", according to the accuracy order.
- \* The power-down history is not recorded when the power-down occurred at the same place and same time.

### 8.2.2.4 SHUT DOWN

- The shutdown history is displayed. The last most 8 shutdown histories are displayed with the hour-meter values that indicate the hours when shutdowns occurred. No other layers are nested below this layer, and there are no adjustment items.

		1	5	10	15	20	25	30	32																			
1		P	A	N	E	L	F	A	C	T.	I	N	1	-	3	0	6	0	2	-	R	G	B	-	J	W	M	7
	AREA 1	S	H	U	T	D	O	W	N																			
2				M	A	I	N				S	U	B			0	0	0	1	2	4	H		2	3	M		
3																												
4		1	T	M	P	-	N	G			T	E	M	P	1		0	0	0	1	2	4	H		2	1	M	
5		2	S	Q	-	I	C				S	Q	N	O	/	L	0	0	0	1	1	5	H		0	5	M	
6		3	M	D	-	I	I	C			E	E	P	R	O	M	0	0	0	1	0	7	H		5	3	M	
7		4	S	Q	-	I	C				V	E	R	-	L	R	0	0	0	0	9	8	H		4	7	M	
8		5	M	D	-	I	I	C			B	A	C	K	U	P	0	0	0	0	5	1	H		3	0	M	
9		6	S	Q	-	I	C				S	E	P	-	I	C	0	0	0	0	1	2	H		0	7	M	
A		7																									M	
B		8																									M	
C																												
D																												
E																												

#### ■ Key operation

- <DOWN> : Shifting to PANEL-1 ADJ (+)
- <UP> : Shifting to POWER DOWN
- <L/R> : Updating displayed information

- \* When there is detail information when shutdown occurred, the possible defective part is displayed as Sub information.

### 8.2.2.5 PANEL-1 ADJ (+)

- Timing and voltage for the driving pulse are set. At third line of the screen, the WB (White Balance) table and frequency table indicating operation status are displayed, and at fifteenth line of the screen, the item for the upper nested layer (PANEL-1 ADJ [+]) is displayed. Pressing the SET key shifts the screen to the next nested layer below for item selection.

		1	5	10	15	20	25	30	32
1		PANEL FACT.				IN1-30602-RGB-JWM7			
	AREA 1								
2									
3									
4									
5									
6									
7									
8									
9									
A									
B									
C									
D		PANEL-1 ADJ (+)							
E									

#### ■ Key operation

- <DOWN> : Shifting to PANEL-2 ADJ (+)
- <UP> : Shifting to SHUT DOWN
- <SET> : Shifting to the next nested layer

- When the screen is shifted to the next nested layer below, the item of the layer above is indicated at third line of the screen, and the item of the layer below is indicated at fifteenth line.
- The configuration of the menu screen is the same for any adjustment item that has lower layers.

		1	5	10	15	20	25	30	32
1		PANEL FACT.				IN1-30602-RGB-JWM7			
	AREA 1								
2		PANEL-1 ADJ							
3									
4									
5									
6									
7									
8									
9									
A									
B									
C									
D		VOL OFFSET <=>							
E									

#### ■ Key operation

- <DOWN> : Shifting to the next item
- <UP> : Shifting to the previous item
- <RIGHT> : Adding by one to the adjustment/setting value
- <LEFT> : Subtracting by one from the adjustment/setting value
- <VOL+> : Adding by 10 to the adjustment/setting value
- <VOL-> : Subtracting by 10 from the adjustment/setting value
- <SET> : Determining the adjustment/setting value and shifting to the upper layer

### 8.2.2.6 PANEL-2 ADJ (+)

- White balance can be adjusted by adjusting R, G, and B gain. Pressing the SET key shifts the screen to the next nested layer below for item selection.

		1	5	10	15	20	25	30	32
1		PANEL FACT.				IN1-30602-RGB-JWM7			
2	AREA 1							[TBL1/60VS]	
3									
4									
5									
6									
7									
8									
9									
10									
11	A								
12	B								
13	C								
14	D	PANEL-2 ADJ (+)							
15	E								
16									

#### ■ Key operation

- <DOWN> : Shifting to PANEL REVISE (+)
- <UP> : Shifting to PANEL-1 ADJ (+)
- <SET> : Shifting to the next nested layer

		1	5	10	15	20	25	30	32
1		PANEL FACT.				IN1-30602-RGB-JWM7			
2	AREA 1	PANEL-2 ADJ						[TBL1/60VS]	
3									
4									
5									
6									
7									
8									
9									
10									
11	A								
12	B								
13	C								
14	D	R-HIGH <=>						: 256	
15	E								
16									

#### ■ Key operation

- <DOWN> : Shifting to the next item
- <UP> : Shifting to the previous item
- <RIGHT> : Adding by one to the adjustment/setting value
- <LEFT> : Subtracting by one from the adjustment/setting value
- <VOL+> : Adding by 10 to the adjustment/setting value
- <VOL-> : Subtracting by 10 from the adjustment/setting value
- <SET> : Determining the adjustment/setting value and shifting to the upper layer

A

- A setting for panel degradation correction can be made. Pressing the SET key shifts the screen to the next nested layer below for item selection.

			1	5	10	15	20	25	30	32
1			PANEL FACT.			IN1-30602-RGB-JWM7				
	AREA 1									[TBL1/60VS]
	2									
	3									
5	4									
	5									
	6									
	7									
10	8									
	9									
	A									
	B									
	C									
15	D	PANEL REVISE (+)								
16	E									

### ■ Key operation

<DOWN> : Shifting to ETC.(+)

<UP> : Shifting to PANEL-2 ADJ (+)

<SET> : Shifting to the next nested layer

				1	5	10	15	20	25	30	32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
1				PANEL FACT.								IN1-30602-RGB-JWM7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	AREA 1			PANEL REVISE								[TBL1/60VS]																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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### ■ Key operation

<DOWN> : Shifting to the next item

<UP> : Shifting to the previous item

<RIGHT> : Adding by one to the adjustment/  
setting value

<LEFT> : Subtracting by one from the adjustment/setting value

<SET> : Determining the adjustment/setting value and shifting to the upper layer

### 8.2.2.8 ETC. (+)

- The setting about the backup of panel adjusting value and various data on panel operational information can be cleared. Pressing the SET key shifts the screen to the next nested layer below for item selection.

[illegible]

### ■ Key operation

<DOWN> : Shifting to RASTER MASK SETUP  
(+)

<UP> : Shifting to PANEL REVISE (+)

<SET> : Shifting to the next nested layer

				1	5	10	15	20	25	30	32	
1				PANEL FACT.				IN1-30602-RGB-JWM7				
	AREA 1			ETC.				[TBL1/60VS]				
		2										
		3										
		4										
5		5										
		6										
		7										
10		8										
		9										
		A										
		B										
		C										
15		D	BACKUP DATA <=>									: NO OPRT
16		E										

### ■ Key operation

<DOWN> : Shifting to the next item

<UP> : Shifting to the previous item

<RIGHT> : Adding by one to the adjustment/  
setting value

<LEFT> : Subtracting by one from the adjustment/setting value

<SET> : Determining the adjustment/setting value and shifting to the upper layer

### 8.2.2.9 RASTER MASK SETUP (+)

- A
- This menu set the RASTER MASK and the drive sequence at RASTER MASK state. Pressing the SET key shifts the screen to the next nested layer below for item selection.

				1		5				10				15				20				25				30		32		
1																														
																													</	

#### ■ Key operation

- <DOWN> : Shifting to PATTEN MASK SETUP (+)  
 <UP> : Shifting to ETC. (+)  
 <SET> : Shifting to the next nested layer

			1		5		10		15		20		25		30	32	
1																	
															</		

#### ■ Key operation

- <DOWN> : Shifting to the next MASK  
 <UP> : Shifting to the previous MASK  
 <RIGHT> : Changing MASK sequence (+)  
 <LEFT> : Changing MASK sequence (-)  
 <SET> : Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.



### 8.2.2.10 PATTEN MASK SETUP (+)

- This menu set the PATTEN MASK and the drive sequence at PATTEN MASK state.

		1	5	10	15	20	25	30	32
1									
	AREA 1								
2									
3									
4									
5									
6									
7									
8									
9									
10									
A									
B									
C									
15	D								
16	E								

#### ■ Key operation

- <DOWN> : Shifting to COMBI MASK SETUP (+)
- <UP> : Shifting to RASTER MASK SETUP (+)
- <SET> : Shifting to the next nested layer

		1	5	10	15	20	25	30	32
1									
	AREA 1								
2									
3									
4									
5									
6									
7									
8									
9									
10									
A									
B									
C									
15	D								
16	E								

#### ■ Key operation

- <DOWN> : Shifting to the next MASK
- <UP> : Shifting to the previous MASK
- <RIGHT> : Changing MASK sequence (+)
- <LEFT> : Changing MASK sequence (-)
- <SET> : Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

### 8.2.2.11 COMBI MASK SETUP (+)

A

- This menu set the COMBI MASK and the drive sequence at COMBI MASK state.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

#### ■ Key operation

- <DOWN> : Shifting to PANEL INFORMATION
- <UP> : Shifting to PATTEN MASK SETUP (+)
- <SET> : Shifting to the next nested layer

B

			1	5	10	15	20	25	30	32																				
1			PANEL FACT. IN1-30602-RGB-JWM7																											
	AREA 1		COMBI MASK SETUP [TBL1/60VS]																											
	2																													
	3																													
	4																													
	5																													
	6																													
	7																													
10	8																													
	9																													
	A																													
	B																													
	C																													
15	D		CMB MASK 01 : 60V																											
16	E																													

#### ■ Key operation

- <DOWN> : Shifting to the next MASK
- <UP> : Shifting to the previous MASK
- <RIGHT> : Changing MASK sequence (+)
- <LEFT> : Changing MASK sequence (-)
- <SET> : Determining the adjustment/setting value and shifting to the upper layer

C

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
- 48 V and 60 P are deleted from the sequence, and represented by 50 V and 60 V, respectively. The ABL/WB table is changed to the PC table.

D

E

F

## 8.2.3 OPTION MODE

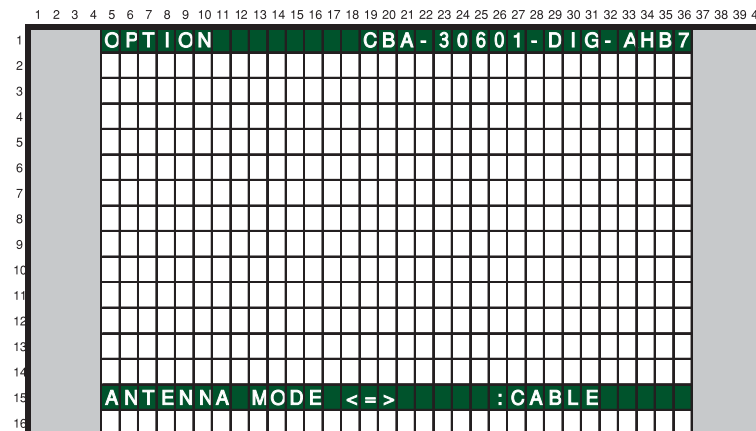
### ■ Operation item

No.	Function/Display	Content	RS232C
1	EDID WRITE MODE ⇔	DISABLE ⇔ ENABLE	-
2	ANTENNA MODE ⇔	CABLE ⇔ AIR	-
3	AFT ⇔	Controls AFT action by turing ON / OFF	-

### 8.2.3.1 EDID WRITE MODE

Exclusively used for production line.

### 8.2.3.2 ANTENNA MODE



Receiving Cable/Air signal with equipped/unequipped DTB tuner.

#### ① When DTV tuner is equipped

It is effective during tuner function only (others are gray-downed). The currently viewed ANT A/ANT B function's cable/air (both analog and digital) signal are changed. The channel settings are memorized (memorized by DTV side).

#### ② When DTV tuner is unequipped

It is possible for ANT A/ANT B function to receive air/cable signal.

Channel settings are not memorized. But after leaving factory mode, the settings are maintained.

If the air/ cable signal is changed, the reserved allocation map is written.

For example, if the signal is changed to air, then the air's broadcast map is configured, and cable's broadcast map is destroyed.

If the signal is changed to cable, then the cable's broadcast map is configured, and air's broadcast map is destroyed.

OSD display	Function	Control device
CABLE	Change the antenna setting to cable	
AIR	Change the antenna setting to air	

### 8.2.3.3 AFT

Exclusively used for production line.

8.2.4 INITIALIZE MODE

■Operation item

No.	Display	Content	RS232C
1	SYNC DET(+)	Exclusively used for technical analysis.	-
2	SG MODE	Paired SG_MODE with SG_PATTERN. Select SG Route.	-
3	SG PATTERN	Paired SG_MODE with SG_PATTERN. Select SG Pattern.	-
4	SIDE MASK LEVEL(+)	Configure the color of the side mask.	BSL GSL RSL
5	FINAL SETUP(+)	Initialize flash memorys on virgin product status	FST
6	HMG/HG SERVICE MODE	Enter HMG/HG SERVICE MODE	-
7	CVT AUTO	Exclusively used for technical analysis.	-
8	HDMI INTR POSITION(+)	Exclusively used for technical analysis.	-

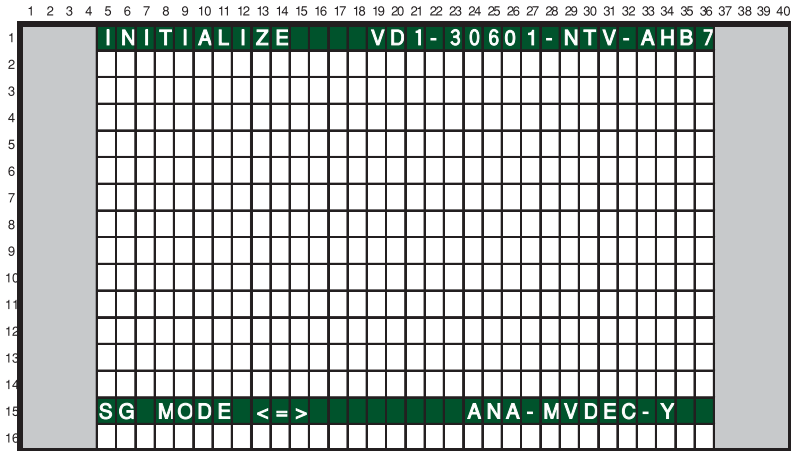
Note : When there is an altered history due to an open TRAP SW, if the "DISPLAY" key is held for at least 5 seconds on the above menu, the altered history will be cleared and the unit will be back to normal.

8.2.4.1 SYNC DET(+)

Exclusively used for technical analysis (details omitted).

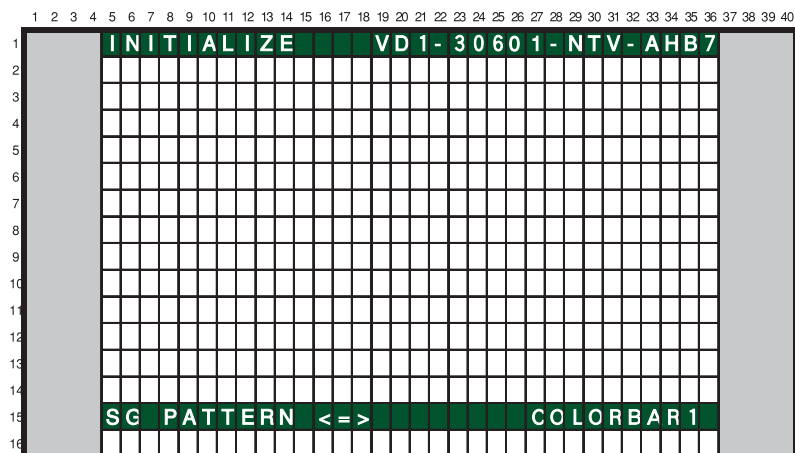
8.2.4.2 SG MODE

SG MODE (SG's route selection)/SG PATTERN (signal pattern selection) are used as pair.  
In SG MODE, select the SG route and then select the SG pattern to be sent by the selected route. In SG MODE, make sure to select the route first.



No.	Display	Content
1	SG OFF	SG Mode is OFF.
2	DIG MVDEC YCBCR	MAIN VDEC: YCbCr (Digital output mode)
3	ANA MVDEC YCBCR	MAIN VDEC: YCbCr (Analog output mode)
4	ANA MVDEC Y	MAIN VDEC: Y (Analog output mode: SG VDEC return setting)
5	ANA AD YCBCR	AD: YCbCr
6	ANA AD RGB	AD: RGB

### 8.2.4.3 SG PATTERN



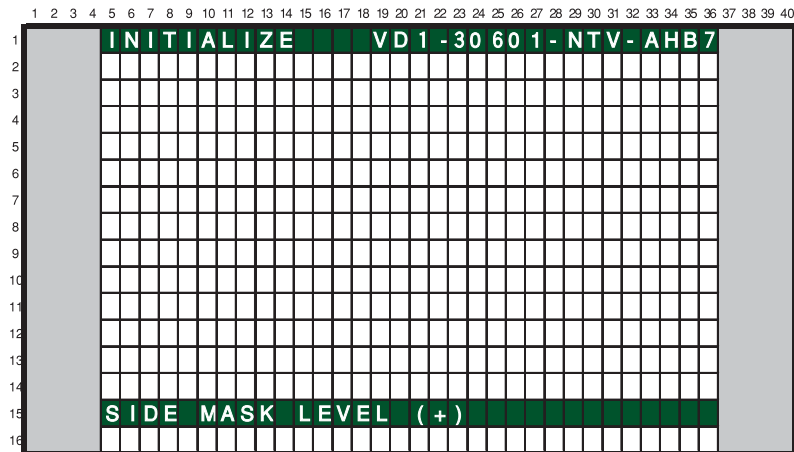
No.	Function/Display	SG Pattern(Brightness IRE Level/Color)
1	COLOR BAR1	Colorbar (75%)
2	COLOR BAR2	Colorbar (100%)
3	RAMP1	Ramp (100% white)
4	RAMP2	Ramp (100% Yellow)
5	RAMP3	Ramp (75% Green)
6	RAMP4	Ramp (75% Red)
7	RAMP5	Ramp (75% Blue)
8	RASTER1	Raster (100% White)
9	RASTER2	Raster (75% Yellow)
10	RASTER3	Raster (75% Cyanide)
11	RASTER4	Raster (75% Green)
12	RASTER5	Raster (75% Magenta)
13	RASTER6	Raster (75% Red)
14	RASTER7	Raster (75% Blue)
15	RASTER8	Raster (-% Black)
16	10STEP1	10STEP (100% white)
17	10STEP2	10STEP (100% Yellow)
18	10STEP3	10STEP (75% Green)
19	10STEP4	10STEP (75% Red)
20	10STEP5	10STEP (75% Blue)

#### ■ Notes when using SG MODE/SG PATTERN

- During factory mode, choose the correct route when changing.
- Basically, during VDEC SG output, make sure to connect SG output's Y or G to the AVI input terminal of VDEC.
- During SG MODE, turn off the blanking 50IRE setup function.
- During VDEC SG output, set the YC separation setting to NTSC.
- It is possible to use ANALOG OUT MODE together during DIGITAL OUT MODE.  
The Main VDEC can output digital color difference, in which colors will appear. But the route to VDEC input cannot be analysed therefore care should be taken when using.  
Depending on the situation, please use the proper analog/digital output.
- The SG MODE outputs color difference and RGB only. Therefore, in the case of CVBS, only the Y input is used resulting in no color. This is not a damage result nor error.
- The SG MODE's ANA AD RGB (route to input 525i to AD by RGB) as a set's route, the setting does not exist. For this account the latter part from MVDEC does not have set values, resulting in having funny colors in colorbar, the brightness changes after switching, etc.  
This is not a damage result nor error.
- Depending on MVDEC's part version, ANA\_MVDEC\_YCBCR may not display colors.

#### 8.2.4.4 SIDE MASK LEVEL

A



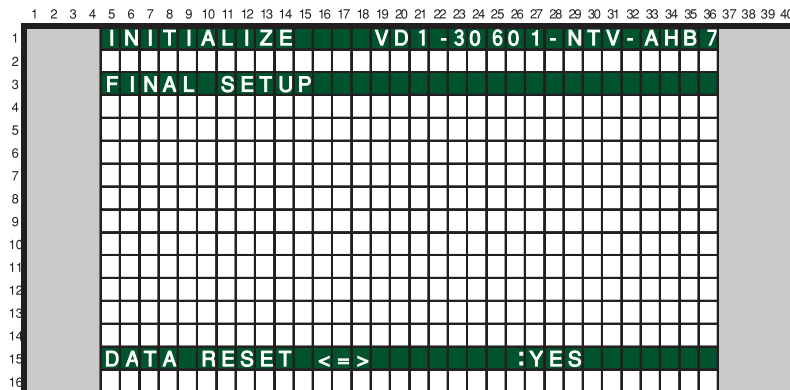
B

To configure sidemask's R, G, B level (To adjust the values, input signal is required).

No.	Display	Content	RS232C
1	R MASK LEVEL ⇄	Adjust Side Mask R (Initial value : 80, Adjustable range: 000-255)	RSL
2	G MASK LEVEL ⇄	Adjust Side Mask G (Initial value : 80, Adjustable range: 000-255)	GSL
3	B MASK LEVEL ⇄	Adjust Side Mask B (Initial value : 80, Adjustable range: 000-255)	BSL

C

#### 8.2.4.5 FINAL SET UP



D

To reset each memory value to factory default values. Factory command is "FST".  
 When the configuration is set to <NO> and the [SET] key is pressed, no action is taken and the menu returns to previous screen.  
 When the configuration is set to <YES> and the [SET] key is pressed for 5 seconds, the reset action executes.

E

**Be sure to disconnect and connect the Power cord after the FINAL SETUP.**  
**When replacing the MAIN ASSY, the FINAL SETUP is required.**

F

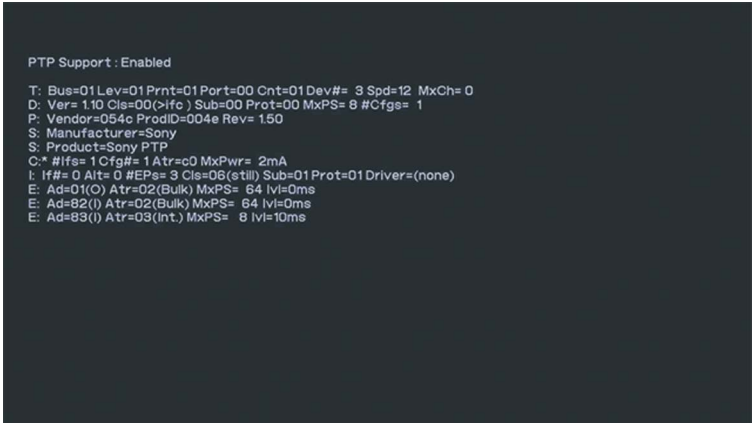
8.2.4.6 HMG/HG SERVICE MODE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1																																							
2																																							
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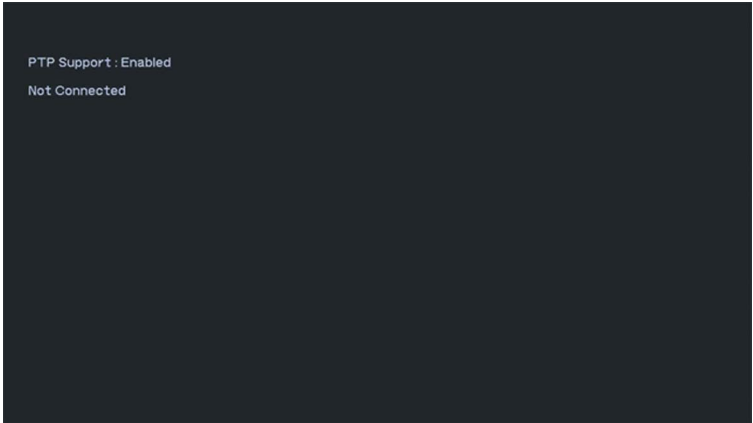
The value of all memorized data are set to shipment status.  
If the [ENTER] key is kept on pressing for 5 second when the status of this menu is <YES>, HMG/HG SERVICE mode will be done.

For ELITE model  
Be sure to do above procedure at input fuction except HMG.

- 2nd FACTORY MODE
  - [ Home Gallery ] (Regular Model)
  - 1. Home Gallery Screen
    - (1) When the device is connected



- (2) When the device is not connected



### (3) Each item explanation (Example)

```

① PTP Support : Disabled
②
③ T: Bus=03 Lev=01 Prnt=01 Port=00 Cnt=01 Dev#= 2 Spd=480 MxCh= 0
④ D: Ver= 2.00 Cls=00(>ifc ) Sub=00 Prot=00 MxPS=64 #Cfgs= 1
⑤ P: Vendor=0dda ProdID=2026 Rev= 1.4f
⑥ S: Manufacturer=ICSI
⑦ S: Product=USB2.0 Card Reader
⑧ S: SerialNumber=0000001
⑨ C:* #Ifs= 1 Cfg#= 1 Atr=80 MxPwr=500mA
⑩ I: If#= 0 Alt= 0 #EPs= 2 Cls=08(stor.) Sub=06 Prot=50 Driver=usb-storage
⑪ E: Ad=82(I) Atr=02(Bulk) MxPS= 512 IvI=0ms
E: Ad=01(O) Atr=02(Bulk) MxPS= 512 IvI=0ms

```

#### ① PTP Support

Disable	PTP Non-Support	String
Enable	PTP Support	String

#### ② T (Topology info)

Bus	Bus Number	Decimal
Lev	Level in topology for this bus	Decimal
Prnt	Parent Device Number	Decimal
Port	Connector/Port on Parent for this device	Decimal

Cnt	Count of devices at this level	Decimal
Dev#	Device Number	Decimal
Spd	Device Speed in Mbps	Decimal
MxCh	Max Children	Decimal

#### ③ D (Device descriptor info)

Ver	Device USB version	Hexadecimal
Cls	Device Class	Hexadecimal
Sub	Device Sub Class	Hexadecimal
Prot	Device Protocol	Hexadecimal
MxPS	Max Packet Size of Default Endpoint	Decimal
#Cfgs	Number Configurations	Decimal

#### ④ P (Product ID info)

Vendor	Vendor ID code	Hexadecimal
ProdID	Product ID code	Hexadecimal
Rev	Product revision number	Hexadecimal

#### ⑤ S (String descriptor info - 1)

Manufacturer	String
--------------	--------

#### ⑥ S (String descriptor info - 2)

Product	String
---------	--------

#### ⑦ S (String descriptor info - 3)

SerialNumber	String
--------------	--------

#### ⑧ C (Configuration descriptor info)

#Ifs	Number of Interfaces	Decimal
#Cfg	Configuration Number	Decimal
Atr	Attributes	Hexadecimal
MxPwr	MaxPower in mA	Decimal

#### ⑨ I (Interface descriptor info)

If#	Interface Number	Decimal
Alt	Alternate Setting Number	Decimal
#Eps	Number of Endpoints	Decimal
Cls	Interface Class	Hexadecimal(String)
Sub	Interface Sub Class	Hexadecimal
Prot	Interface Protocol	Hexadecimal
Driver	Driver name	String

#### ⑩ E (Endpoint descriptor info)

#### ⑪ E (Endpoint descriptor info)

Ad	Endpoint Address (I=In, O=Out)	Hexadecimal(String)
Atr	Attributes	Hexadecimal(String)
MxPS	Endpoint Max Packet Size	Decimal
IvI	Interval (max) between transfers	Decimal

## 2. End method

It is the same as the case that Home Gallery displays.



## 9. LIST OF RS-232C COMMANDS

### 9.1 RS-232C COMMANDS OUTLINE

#### 9.1.1 PREPARED TOOLS

It is necessary to prepare the following tools to use RS-232C command.

- PC
- Application for control
- 232C cable (straight)

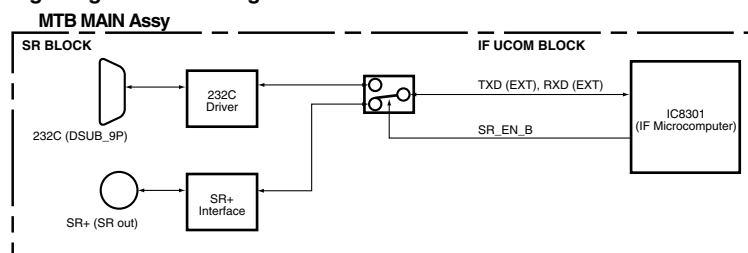
- \* It is not likely to operate correctly in Win98 function/ ME and Win for foreign countries.
- \* The setting of the Com port cannot be communicated if it has not been done correctly.  
(Please follow a operating instructions of the PC about the Com port.)

#### 9.1.2 USING RS-232C COMMANDS

For the PDP-4271HD/KUCXC, PDP-5071PU/KUCXC, PRO-940HD/KUCXC and PRO-1140HD/KUCXC series Plasma Displays, the circuitry is structured as shown in the diagram below to support the SR+ system. Controlling with either the SR+ system or RS-232C commands can be selected.

As the SR+ system is selected at shipment, to control with RS-232C commands in servicing it is necessary to switch the paths. After servicing, be sure to return the setting to the SR+ system.

##### ● Rough diagram of switching between SR+ and RS-232C



#### ■ How to switch SR+/RS-232C ?

There are "How to switch SR+/RS-232C by remote control in Standby Mode" and "How to switch SR+/RS-232C by remote control in the INTEGRATOR MENU" as a Method

##### ① To select SR+/RS-232C by remote control in Standby Mode

# During Standby mode, the following operation is done within 10 seconds.

To select from SR+ to RS-232C/To select from RS-232C to SR+

During standby mode, hold the [VOLUME+(or-)] key on the remote control unit pressed for 3-10 seconds. →Then within 3 seconds after the key is released, hold the [2-screen] key released, use the [SET(ENTER)] key on the remote control unit to set to RS-232C(the baud rate last selected is chosen) or the [HOME MENU] key to set to SR+

# During IF Standby mode (once 10 seconds or more has passed after the LED goes dark during communication), the first key press may not be accepted. In such a case, for a key operation, first press any key other than the [POWER] key and [CH] keys, then the desired key.

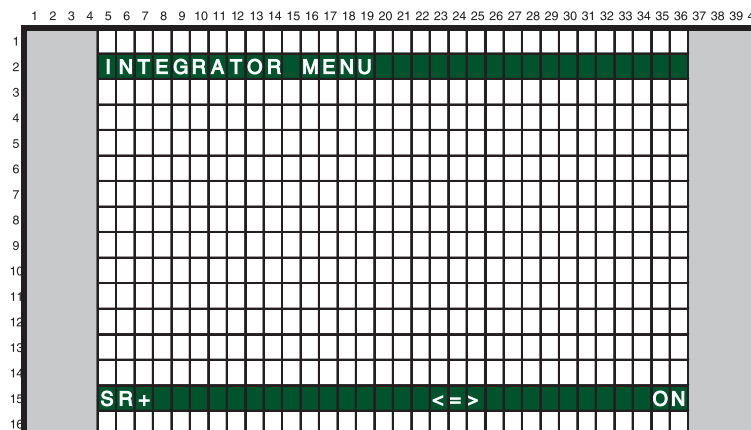
# At the switch SR+/RS-232C, the LED will be blinked on the fixed time.

##### ② To select SR+/RS-232C in the INTEGRATOR MENU

# How to enter INTEGRATOR MENU.

During standby mode, press the [Home Menu] key, and then press the [POWER] key within 3 seconds. Or during Factory mode, hold the [INTEGRATOR] key.

# In INTEGRATOR MENU, there is a OSD where SR+(or RS-232C) is turned on/off, and it switches on the screen.



## 9.1.3 COMMAND PROTOCOL

### ■ Communication protocol : Asynchronous serial communication by RS-232C

Start bit length : 1 bit  
 Data width : 8 bit (ASCII code/ no distinction between upper case and lower case)  
 Parity : None  
 Stop bit length : 1 bit  
 Baud rate : 1200/2400/4800/19200/38400 bps (Initial value : 9600 bps)

### ■ Adjustment function

Direct effectivity of numbers : When a number is transmitted after a command, an adjustment value can be directly set.

### ■ Data format

The format of the control signal transmitted from the user side controller is as described below.

STX (02Hex) is arranged at the time of communication start and ETX (03Hex) is arranged at the time of data transmission complete, and ID, command and parameter are arranged in between. Data consists of ASCII type alphanumeric characters, and there is no distinction between the upper case and the lower case.

● In the case of command only  
 [single function command]

STX	ID	Command	ETX
0x02	**	□□□	0x03

● When setting/adjustment data is accompanied  
 [setting/adjustment command]

STX	ID	Command	Parameter	ETX
0x02	**	□□□	△△△	0x03

### ■ Command processing

Command processing starts as soon as the command is entered.

ID shall be the two asterisks, "\*\*".

### ■ Confirmation of reception

The module microcomputer will make judgment to the command received from the main side, and if the command is judged to be an effective one, processing will be executed. When the system is in the standby status for the next command after completion of the processing, a reply to the received command is sent out. The data to be responded is a data in the upper case after deleting the ID code from the received command.

● When setting/adjustment data is accompanied

Data transmitted from PC

STX	ID	Command	Parameter	ETX
0x02	**	□□□	△△△	0x03

Reply data

STX	Command	Parameter	ETX
0x02	□□□	△△△	0x03

● In the case of command only

Data transmitted from PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

Reply data

STX	Command	ETX
0x02	□□□	0x03

When responding, ERR is sent back if the command is unknown, and XXX is sent back if the command itself is valid but it cannot be processed because of its status.

● In the case of invalid command

Data transmitted from PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

Reply data

STX	Command	ETX
0x02	ERR	0x03

● In the case of a command not executable due to its status

Data transmitted from PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

Reply data

STX	Command	ETX
0x02	XXX	0x03

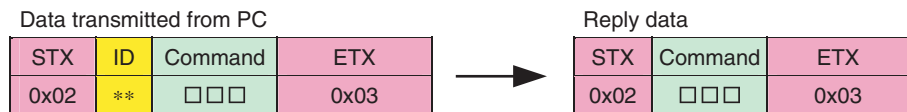
### ■ Processing in the case of an error

If a communication error occurs between STX and ETX, processing of that command is stopped, and the reception buffer is cleared.

In the command reception process, the character string transmitted after the receipt of STX are continued to be stored in the register, and by receipt of ETX, the character string sandwiched between STX and ETX is recognized as a command. If the prepared character string storage buffer (24 bytes including STX, ID and ETX) is exceeded, a reply will not be sent out.

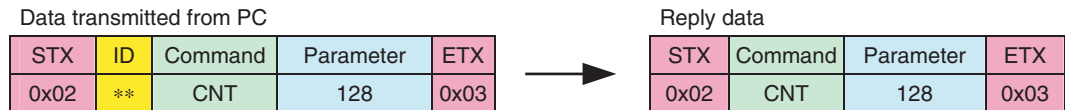
### Single function command

It is a command that a command alone will complete an operation, and the command section consists of three characters.



### Adjustment command and adjustment value

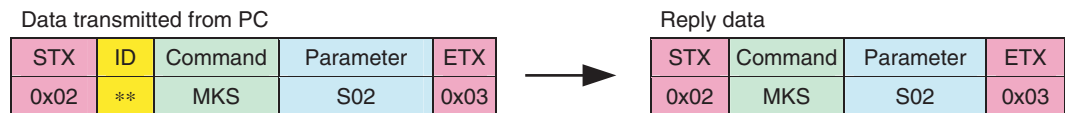
It is a command, accompanied by an adjustment value, to change the parameter value, and the command section is also three characters as in the case of a single function command. The adjustment value is a three character decimal numerical data within the range of 000-999. Incidentally, the adjustable range will be different depending on the function to be adjusted. (Be careful as it is not always up to 999.)



- \* XXX will be transmitted if the received command is exceeding the adjustable range of the adjustment value.
- \* When the same setting value is transmitted consecutively for two times or more, the setting is overwritten without responding with XXX even though the command is invalid, and an ACK after deleting the ID is sent back.

### Setting command and setting value

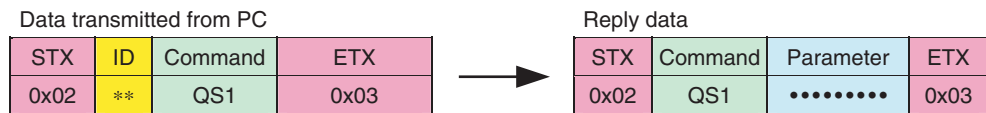
It is a command, accompanied by a setting value, to change the setting value of the parameter, and the command section consists of three characters. The setting value consists of three characters, and the first character is fixed to S and the remaining two characters are decimal numbers within the range of S00-S99.



- \* XXX will be transmitted if the received command does not exist as a setting value.
- \* When the same setting value is transmitted consecutively for two times or more, the setting is overwritten without responding with XXX even though the command is invalid, and an ACK after deleting the ID is sent back.

### Status acquisition (QUEST) command

This is a command to report the operational status and the setting value to the system side.  
 When a command is received from the system side, an applicable content depending on the type of command is read out from the memory and sent back.  
 The command section consists of three characters, and the first character is fixed to Q. The second character and on are set depending on the content of the information.  
 When sending back a reply data, the received command, various data converted to ASCII code and checksum of that data are added and sent.  
 The data length will be subject to each individual specification as the content of a reply will be different depending on the type of QUEST command.



## 9.2 LIST OF RS-232C COMMANDS

RS-232C commands can be used in Service Factory mode. Before using RS-232C commands, it is necessary to change the factory presetting.

See "6.5.1 OUTLINE OF THE RS-232C".

[Note ; If you want to see version information (ex. QS1, QS6, Factory, Menu), Please see 10 seconds after starting.]

### ■ RS-232C command list

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
A							
ABL	***	Adjusting the upper limit of the power	●		Mod	●	
AMT	S00	Cancelling the Audio mute		●			
	S01	Cancelling the Audio mute		●			
APW	S00	WB correction interlocked with APL: OFF	●			●	
	S01	WB correction interlocked with APL: ON	●			●	
B			MDU	MTB			
BCP		Copying the backup data in the EEPROM	●			●	
BHI	***	User white balance : BLUE highlight	●				
BLW	***	User white balance : BLUE lowlight	●				
BRT	***	User brightness	●				
BSM	S00	After image/Burning safe mode: OFF	●				
	S01	After image/Burning safe mode: ON	●				
BSL		Adjusting Side Mask Level BLUE		●			
BSS		Moving to BSD service mode		●			
C			MDU	MTB			
CBU		Clearing backup data of EEPROM	●			●	
CHM		Clearing data of the hour meter	●			●	
CHN	FWD	Changing tuner preset channel (1 step forward)		●			
	REV	Changing tuner preset channel (1 step reverse)		●			
CHR		Clearing data of the hour meter of MTB side		●		●	
CNT	***	User contrast	●				
CMT		Clearing data of the maximum temperature	●			●	
CPC		Clearing power-on count data	●			●	
CPD		Clearing power-down history	●			●	
CPM		Clearing data of the pulse meter	●			●	
CSD		Clearing shutdown history	●			●	
CTM		Clearing working log	●			●	
D			MDU	MTB			
DRV	S00	Main power off	●				
	S01	Main power on	●				
DW*		To subtract *** to the adjustment value (***) = 000 to 999, designated by a function command)		●			
E			MDU	MTB			
ESV	S00	Setting Power Consumption mode to normal sequence & normal curve	●				
	S01	Setting Power Consumption mode to silent sequence & normal curve	●				
	S02	Setting Power Consumption mode to silent sequence & power-saving curve	●				
	S10	Setting Power Consumption mode to normal sequence & normal curve	●				
	S11	Setting Power Consumption mode to silent sequence & normal curve	●				
	S12	Setting Power Consumption mode to silent sequence & power-saving curve	●				
F			MDU	MTB			
FAJ		Determining the flag of the DIGITAL Assy adjustment in "adjustment is completed"	●			●	
FAN		Factory mode off	●	●		●	
FAY		Factory mode on	●	●			
FST		Set each memory setting of MTB side to the shipment state.		●			
G			MDU	MTB			
GHI	***	User white balance : GREEN highlight	●				
GLW	***	User white balance : GREEN lowlight	●				
GSL		Green side mask level adjustment		●		●	

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
I							
INA	***	Terrestrial analog signal switched by tuner (ANTENNA A)		●		●	
	***##	Switching the terrestrial digital signal (ANTENNA A) and terrestrial analog signal		●			
	***	Switching the terrestrial analog signal (ANTENNA A)		●			
INB		Switching the terrestrial analog signal (ANTENNA B)		●			
INC	***	Switching the terrestrial digital signal (EUC is Step-upD and RegularD only, and IBD is AU only)		●			
IND		Satellite digital signal switched by tuner (BS)		●			
INE		Satellite digital signal switched by tuner (CS1)		●			
INF		Satellite digital signal switched by tuner (CS2)		●			
ING		Switching iLink input function		●			
INH		Switching SD card/PCMCIA card		●			
INP	S01	Input switch: INPUT 1		●			
	S02	Input switch: INPUT 2		●			
	S03	Input switch: INPUT 3		●			
	S04	Input switch: INPUT 4		●			
	S05	Input switch: INPUT 5 (JP/US/EU(Step-up) /IBD)		●			
	S06	Input switch: INPUT 6 (JP/US/EU(Step-up) /IBD)		●			
	S07	Input switch: INPUT 7 (JP/US)		●			
K			MDU	MTB			
KDD		Moving to function standby		●			
M			MDU	MTB			
MKC	S00	MASK off	●		Mod	●	
	S01	H ramp (slant 1) M	●		Mod	●	
	S02	H ramp (slant 4) M	●		Mod	●	
	S03	Slanting ramp M	●		Mod	●	
	S04	30 for aging	●		Mod	●	
	S05	05 for aging	●		Mod	●	
	S06	Erasing afterimage 1	●		Mod	●	
	S07	Erasing afterimage 2 (RGB: zigzag, V: reverse)	●		Mod	●	
	S08	White (change in luminance level)	●		Mod	●	
	S09	PEAK SEEK RASTER	●		Mod	●	
	S10	For engineering use	●		Mod	●	
MKS	S00	MASK off	●		Mod		
	S01	H ramp (slant 1)	●		Mod	●	
	S02	H ramp (slant 4)	●		Mod	●	
	S03	V ramp (slant 1)	●		Mod	●	
	S04	Slanting ramp	●		Mod	●	
	S05	Window (Hi= 870, Lo= 102)	●		Mod	●	
	S06	Window (Hi= 1023, Lo= 102)	●		Mod	●	
	S07	Window (Hi= 1023)	●		Mod	●	
	S08	Window (Hi= 1023) 4 %	●		Mod	●	
	S09	Window (Hi= 1023) 1.25 %	●		Mod	●	
	S10	Window (1/7 LINE)	●		Mod	●	
	S11	STRIPE (MGT/GRN)	●		Mod	●	
	S12	STRIPE (GRN/MGT)	●		Mod	●	
	S13	B & W, checker (1 line)	●		Mod	●	
	S14	B & W, checker (2 lines)	●		Mod	●	

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Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
M							
MKS	S15	B & W, checker (4 lines)	●		Mod	●	
	S16	B & W, checker (8 lines)	●		Mod	●	
	S17	COLOR BAR	●		Mod	●	
	S18	Slanting lines	●		Mod	●	
	S19	Red & black, checker (1 line)	●		Mod	●	
	S20	Red & black, checker (2 lines)	●		Mod	●	
	S21	Red & black, checker (4 ines)	●		Mod	●	
	S22	Red & black, checker (8 lines)	●		Mod	●	
	S23	RGB zigzag, V reverse	●		Mod	●	
	S24	SUS 2000 pulses (black raster)	●		Mod	●	
	S25	Window (Hi= 870, Lo= 102) Pattern 3	●		Mod	●	
	S26	Window (Hi= 1023, Lo= 102) Pattern 3	●		Mod	●	
	S27	Window (Hi= 1023) Pattern 3	●		Mod	●	
	S28	Window (Hi= 1023) 4 % Pattern 3	●		Mod	●	
	S29	Window (Hi= 1023) 1.25 % Pattern 3	●		Mod	●	
	S30	Window (1/7 LINE) Pattern 3	●		Mod	●	
	S31	Noise ON - White	●		Mod	●	
	S32	Noise ON - Red	●		Mod	●	
	S33	Noise ON - Green	●		Mod	●	
	S34	Noise ON - Blue	●		Mod	●	
	S35	Noise ON - Black	●		Mod	●	
	S36	For engineering use	●		Mod	●	
	S37	For engineering use	●		Mod	●	
	S38	For engineering use	●		Mod	●	
	S39	For engineering use	●		Mod	●	
	S51	Raster - White	●		Mod	●	
	S52	Raster - Red	●		Mod	●	
	S53	Raster - Green	●		Mod	●	
	S54	Raster - Blue	●		Mod	●	
	S55	Raster - Black	●		Mod	●	
	S56	Raster - Cyan	●		Mod	●	
	S57	Raster - Magenta	●		Mod	●	
	S58	Raster - Yellow	●		Mod	●	
	S59	RASTER09: Red 760	●		Mod	●	
	S60	RASTER10: Cyan 419	●		Mod	●	
	S61	RASTER11: Green 856	●		Mod	●	
	S62	RASTER12: Gray 313	●		Mod	●	
	S63	RASTER13: Gray 908	●		Mod	●	
	S64	RASTER14: Yellow egg color	●		Mod	●	
	S65	RASTER15: Beige	●		Mod	●	
	S66	RASTER16: Sky color	●		Mod	●	
	S67	RASTER17: Pale purple	●		Mod	●	
	S68	RASTER18: Magenta 54	●		Mod	●	
	S69	RASTER19: Red 1023+	●		Mod	●	
	S70	RASTER20: Green 1023+	●		Mod	●	
	S71	RASTER21: Blue 1023+	●		Mod	●	
	S72	RASTER22: Red 588+	●		Mod	●	
	S73	RASTER23: Green 588+	●		Mod	●	
	S74	RASTER24: Pale rose	●		Mod	●	

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
M							
MST	S00	Display one screen		●			
	S01	PsideP (Main size : normal)		●			
	S02	PinP (Right_down)		●			
	S03	PinP (Right_up)		●			
	S04	PinP (Left_up)		●			
	S05	PinP (Left_down)		●			
	S06	PsideP (Main size : center)		●			
	S07	PsideP (Main size : large)		●			
	S08	SWAP (Exchanging sub-screen)		●			
O			MDU	MTB			
OSD	S00	Turning OSD setting to off		●			
	S01	Turning OSD setting to on		●			
P			MDU	MTB			
PAV	S**	Switching panel functions interlocked with the AV selection	●				
PBH	***	Panel white balance adjustment - Blue highlight	●		Mod	●	
PBL	***	Panel white balance adjustment - Blue low light	●		Mod	●	
PDM	S00	Passing PD signals to the Power SUPPLY Unit => Power-down	●				
	S01	Not passing PD signals to the Power SUPPLY Unit => No power-down	●				
PFN		Factory mode: off	●			●	
PFS		Setup at shipment	●			●	
PFY		Factory mode: on	●			●	
PGH	***	Panel white balance adjustment - Green highlight	●		Mod	●	
PGL	***	Panel white balance adjustment - Green low light	●		Mod	●	
PGM	S**	Setting of the gamma table	●				
PMT	S00	Canceling panel muting	●				
	S01	Panel muting	●				
POF		Power off	●	●	Main		
PON		Power on	●	●	Main		
PPT	S00	Panel protection: off	●			●	
	S01	Panel protection: on	●			●	
PRH	***	Panel white balance adjustment - Red highlight	●		Mod	●	
PRL	***	Panel white balance adjustment - Red low light	●		Mod	●	
PUC	S00	Pure cinema: off	●	●		●	
	S01	Pure cinema: standard	●	●		●	
	S02	Pure cinema: advanced	●	●		●	
Q			MDU	MTB			
QAJ		Acquiring various adjustment values	●				
QIP		Acquiring various input signal data	●				
QMT		Acquiring temperature of MTB side and Fan speed		●			
QNG		Acquiring shut-down information of MTB side		●			
QPD		Acquiring logs of power-down points	●				
QPM		Acquiring data of the pulse meter	●				
QPW		Acquiring panel white balance adjustment values	●				
QS1		Acquiring unit data, such as the software version common to all models, regardless of destination	●	●			
QS2		Acquiring data on the status of the unit, such as temperature	●				
QS6		Acquiring unit data, such as the software version common to all models, regardless of destination		●			
QSD		Acquiring data on shutdown	●				

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Command Name	Function		Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
Q							
QSI		Acquiring data related with signals	●				
R			MDU	MTB			
RBL	S**	Setting of blue level for panel degradation correction	●		Mod	●	
RGL	S**	Setting of green level for panel degradation correction	●		Mod	●	
RHI	***	User white balance - Red highlight	●				
RLW	***	User white balance - Red low light	●				
RRL	S**	Setting of red level for panel degradation correction	●		Mod	●	
RSL	***	Adjustment of the Red side mask level		●		●	
RSW	***	Adjustment of the width of XY reset pulse 1	●		Mod	●	
RYW	***	Adjustment of the width of XY reset pulse 2	●		Mod	●	
S			MDU	MTB			
SDM	S00	Shutdown enabled	●				
	S01	Shutdown prohibited	●				
SFR	S01	Measures against AM radio noise - Pattern 1	●		Mod	●	
	S02	Measures against AM radio noise - Pattern 2	●		Mod	●	
	S03	Measures against AM radio noise - Pattern 3	●		Mod	●	
	S04	Measures against AM radio noise - Pattern 4	●		Mod	●	
	S05	Measures against AM radio noise - Pattern 5	●		Mod	●	
	S06	Measures against AM radio noise - Pattern 6	●		Mod	●	
	S07	Measures against AM radio noise - Pattern 7	●		Mod	●	
	S08	Measures against AM radio noise - Pattern 8	●		Mod	●	
SMM	S**	Setting of the effective area during streaking correction	●			●	
SN0	***	Setting of the serial No. 0 (panel)	●		Mod	●	
SN1	***	Setting of the serial No. 1 (panel)	●		Mod	●	
SN2	***	Setting of the serial No. 2 (panel)	●		Mod	●	
SN3	***	Setting of the serial No. 3 (panel)	●		Mod	●	
SN4	***	Setting of the serial No. 4 (panel)	●		Mod	●	
SZM	S00	Setting the screen size to Dot by Dot or PARTIAL		●			
	S01	Setting the screen size to 4 :3		●			
	S02	Setting the screen size to FULL or FULL1080i		●			
	S03	Setting the screen size to ZOOM		●			
	S04	Setting the screen size to CINEMA		●			
	S05	Setting the screen size to WIDE		●			
	S06	Setting the screen size to FULL 14 : 9		●			
	S07	Setting the screen size to CINEMA 14 : 9		●			
S08	Setting the screen size to FULL1035		●				
T							
—		—					
U			MDU	MTB			
UAJ		Determining the flag for the DIGITAL Assy adjustment in "not adjusted"	●				
UP*		To add *** to the adjustment value (*** = 000 to 999, designated by a function command)		●			



Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
V							
VFQ	S01	Setting the frequency in Mask mode to VD-48 Hz	●		Mod	●	
	S02	Setting the frequency in Mask mode to VD-50 Hz	●		Mod	●	
	S03	Setting the frequency in Mask mode to VD-60 Hz	●		Mod	●	
	S05	Setting the frequency in Mask mode to VD-72 Hz	●		Mod	●	
	S06	Setting the frequency in Mask mode to VD-75 Hz	●		Mod	●	
	S13	Setting the frequency in Mask mode to PC-60 Hz	●		Mod	●	
	S14	Setting the frequency in Mask mode to PC-70 Hz	●		Mod	●	
	S22	Setting the frequency in Mask mode to VD-50 Hz (nonstandard)	●		Mod	●	
	S23	Setting the frequency in Mask mode to VD-60 Hz (nonstandard)	●		Mod	●	
	S25	Setting the frequency in Mask mode to VD-72 Hz (nonstandard)	●		Mod	●	
	S26	Setting the frequency in Mask mode to VD-75 Hz (nonstandard)	●		Mod	●	
VOF	***	Adjustment of the reference value of Vofs voltage	●			●	
VOL	UP*, DW*, ***	To adjust the volume (to be used in combination with UP*/DW*)		●			
VRP	***	Adjustment of the reference value of Vrst-p voltage	●			●	
VSU	***	Adjustment of the reference value of Vsus voltage	●			●	
W							
WBI	S00	Panel WB standard output mode: off	●			●	
WBI	S01	Panel WB standard output mode: on	●			●	
X							
XSB	***		●		Mod	●	
Y							
YSB	***	Y-SUS-B ADJ	●		Mod	●	
YTB	***	Y-SUSTAIL T2 ADJ	●		Mod	●	
YTG	***	Y-SUSTAIL T1 ADJ	●		Mod	●	
YTW	***	Y-SUSTAIL W ADJ	●		Mod	●	
Z							
ZDT		Initializing the DTB FLASH		●		●	
ZME		Initializing the video EEPROM data		●		●	
ZPR		Initializing the setting data to which no adjustment command is provided	●			●	

1 2 3 4

## 9.3 OUTLINE OF COMMANDS

### 9.3.1 QS1

A ■ Acquisition of panel status ••• [QS1]

Model information and version information are returned.

Format	Effective Condition	Function	Remarks
[QS1]	Every time	Output of status	Reply Data : 105 Byte

Array		Size	Remarks
ECO		3	QS1 ( Fixed)
1	Display Information 1	1	F
2	Display Information 2	1	7 : G7
3	Display Information 3	1	A : USA
4	Display Information 4	1	*
5	Display Information 5	1	B
6	MdUCon-Boot	3	01A
7	MdUcon-Prg	8	
8	Seq Prs-Boot	3	01A
9	Seq Prs-Prg	8	
10	SQ-VIDEO	4	
11	SQ-PC	4	
12	Panel Type	1	P/F
13	Reserved (*)	7	*****
14	, (Comma)	1	
15	MTB Information 1 (Generation)	1	7 : G7
16	MTB Information 2 ( Regional model)	1	A : USA
17	MTB Information 3 ( Grade)	1	H : Elite
18	MTB Information 4 (System Type)	1	B
19	Common Version for IF microcomputer.	4	
20	Common Version for Main microcomputer.	8	
21	Boot Version of Main microcomputer.	4	
22	Common Version for Multi-Processor.	8	
23	Boot Version of Multi-Processor.	4	
24	Reserved (*)	24	
25	Check Sum	2	FF

● MTB/MB-side's Information (15-24)	
IF uCON	Common Version of IF-uCON
Main uCon	Common Version of Main-uCON
Main uCon-Boot	Boot Version of Main-uCON
Multi-Pr s	Common Version of Multi-Processor Program.
Multi Prs-Boot	Boot Version of Multi-Processor Program.

<b>1.Resolution/Inch Size</b>	<b>2. Panel Generation</b>	<b>● MTB/MB Generation</b>	<b>● Regional model</b>
3 1024*768/42	6 G6	6 G6	J JP
4 1024*768/43	7 G7	7 G7	A US
5 1280*768/50	8 G8	8 G8	E EU
6 1365*768/50	9 G9	9 G9	G GE
7 1365*768/60	0 G10	0 G10	C CH
F 1920*1080/50			U AU
<b>3. Grade</b>	<b>4. System Type</b>	<b>● MTB/MB Product Form</b>	<b>● MTB/MB Grade</b>
* Commonness	* Commonness	S System model	H Elite / DXA / Step-upD
A US (reserved)	Z Evaluation	B One Body Model (SX)	T Step-upA /XG /
E EU (reserved)	<b>● Panel Product Form</b>	M Monitor (FHD)	TXC / Re gular (US)
J Japan (reserved)	S System model		B Not used.( For Future)
<b>● Panal Type</b>	B All-in-one design TV		S Regular D
P the past	M Monitor		R Regular A
F High-effective	D Standard module		
	E Simple module		

### ■ Acquisition of panel operation data ••• [QS2]

The command QS2 is for acquiring data on the panel's operational information.

Command Format	Effective Operation Modes	Function	Remarks
[QS2]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+23(DATA)+2(CS)= 28 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QS2
1	Notification of mode shifting to STB	1 Byte	1
2	Flag for adjustment of the main unit	1 Byte	0
3	Flag for adjustment-data backup	1 Byte	0
4	"1st PD" data	1 Byte	0
5	"2nd PD" data	1 Byte	0
6	Still picture detection	1 Byte	0
7	Reserved	2 Byte	**
8	Temperature data (TEMP 1)	3 Byte	128 (*1)
9	SD main data	1 Byte	0
10	SD sub data	1 Byte	0
11	Operation status induced by SD	1 Byte	0
12	Data from the hour meter	8 Byte	00000259 (*2)
13	MASK indication	1 Byte	0
CS		2 Byte	4A

**Note :** (\*1) : The unit scale is centigrade. The data is A/D value from the thermal sensor.

(\*2) : "00000259" of "Data from the hour meter" means 2 hours 59 minutes.

1: Notification of mode shifting to Standby	
0	Entering Standby mode failed
1	Entering Standby mode succeeded

2: Adjustment of the main unit	
0	Adjustment completed
1	Adjustment not completed

3: Adjustment-data backup	
0	With backup data
1	No data (default)

4, 5: PD data	
0	No PD data
1	Not used
2	POWER
3	SCAN
4	SCN-5V
5	Y-DRV
6	Y-DCDC
7	Y-SUS
8	ADRS
9	X-DRV
A	X-DCDC
B	X-SUS
C	Not used
D	Not used
E	Not used
F	UNKNOWN

6: Still picture detection	
0	Normal screen
1	Still picture

9: SD main data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

10-1: SD-Sub (SQ-IC)	
0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
6	Version mismatching

10-2: SD-Sub (IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

10-3: SD-Sub (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved

11: Operation status induced by SD	
0	Normal
1	Relay-off completed
2	During warning indication

13: MASK indication	
0	MASK-OFF
1	MASK-ON

### 9.3.3 QIP

#### ■ Acquisition of other data on the panel ••• [QIP]

The command QIP is for acquiring data on operational information of the panel.

A

Command Format	Effective Operation Modes	Function	Remarks
[QIP]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+58(DATA)+2(CS)= 63 Byte

B

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QIP
1	SERIAL	15 Byte	-----
2	HOURLY METER	8 Byte	00000000
3	TOTAL HOURLY METER	8 Byte	00000000
4	PON COUNTER	8 Byte	00000000
5	TEMP1 acquisition (Temperature value)	5 Byte	+23.5(*)
6	TEMP0 acquisition (Temperature value)	5 Byte	+28.7(*)
7	MAX-TEMP1 acquisition (Temperature value)	5 Byte	+78.3(*)
8	Reserved	4 Byte	****
CS		2 Byte	94

(\*) : Centigrade scale

C

### 9.3.4 QAJ

#### ■ Acquisition of panel adjustment data (common data) ••• [QAJ]

The command QAJ is for acquiring the panel's factory-preset data.

Command Format	Effective Operation Modes	Function	Remarks
[QAJ]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+41(DATA)+2(CS)= 46 Byte

D

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QAJ
1	V-SUS adjustment value	3 Byte	128
2	V-OFT adjustment value	3 Byte	128
3	V-RST-P adjustment value	3 Byte	128
4	Reserved	3 Byte	***
5	XSB adjustment value	3 Byte	128
6	YSB adjustment value	3 Byte	128
7	YTG adjustment value	3 Byte	128
8	YTW adjustment value	3 Byte	128
9	RSW adjustment value	3 Byte	128
10	YTB adjustment value	3 Byte	128
11	RYW adjustment value	3 Byte	128
12	R-REVICE setting value	1 Byte	0
13	G-REVICE setting value	1 Byte	0
14	B-REVICE setting value	1 Byte	0
CS		2 Byte	B7

F

• For each REVICE setting value, the level set for RRL, RGL, or RBL is transmitted as one character.

### 9.3.5 QPW

#### ■ Acquisition of ABL/WB adjustment data ••• [QPW]

The command QPW is for acquiring the factory-preset data about the video of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPW]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+35(DATA)+2(CS)= 40 Byte

Data Arrangement	Data Length	Output Example	1: Drive sequence	12, 15: Setting for Items 12 and 15
ECO	3 Byte	QPW	48V Video 48 Hz	0 OFF
1 Drive sequence	3 Byte	60V	50V Video 50 Hz	1 ON
2 Standard/nonstandard	1 Byte	S	60V Video 60 Hz	
3 Type of ABL/WB tables	2 Byte	T2	72V Video 72 Hz	13: Peripheral luminance correction
4 ABL adjustment value	3 Byte	128	75V Video 75 Hz	0 OFF
5 R-HIGH adjustment value	3 Byte	256	60P PC 60 Hz	2 ON (interlocked with APL)
6 G-HIGH adjustment value	3 Byte	256	70P PC 70 Hz	
7 B-HIGH adjustment value	3 Byte	256		
8 R-LOW adjustment value	3 Byte	512		16: Transition of brightness by protective operations
9 G-LOW adjustment value	3 Byte	512	2: Standard/nonstandard	0 Upper limit state for brightness
10 B-LOW adjustment value	3 Byte	512	S Standard	1 Brightness being reduced
11 Gamma setting	1 Byte	A	N Nonstandard	2 Lower limit state for brightness
12 Streaking correction	1 Byte	1		3 Brightness being increased
13 Peripheral luminance correction	1 Byte	0	3: Type of ABL/WB tables	
14 Reserved	1 Byte	*	Tn n: 1 to 4	
15 WB interlocked with APL	1 Byte	0		
16 Transition of protective operations	1 Byte	0	11: Gamma setting	
17 Reserved	2 Byte	**	n 0 to F	
CS	2 Byte	37		

### 9.3.6 QPM

#### ■ Acquisition of pulse meter value ••• [QPM]

The command QPM is for acquiring the accumulated number of pulses of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPM]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+40(DATA)+2(CS)= 45 Byte

Data Arrangement	Data Length	Output Example
ECO	3Byte	QPM
1 Pulse meter B 1	8Byte	00000000
2 Pulse meter B 2	8Byte	00000000
3 Pulse meter B 3	8Byte	00000000
4 Pulse meter B 4	8Byte	00000000
5 Pulse meter B 5	8Byte	00000000
CS	2Byte	E7

9.3.7 QPD

■ Acquisition of PD logs ●●● [QPD]

The command QPD is for acquiring data from the 8 latest power-down (PD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QPD]	All operations	To acquire data on the power-down logs	Return data: 3 (ECO)+80(DATA)+2(CS)= 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QPD
1	Latest "1st PD" data	1 Byte	A
2	Latest "2nd PD" data	1 Byte	2
3	Data from the hour meter for the latest PD	8 Byte	00010020
4	Second latest "1st PD" data	1 Byte	E
5	Second latest "2nd PD" data	1 Byte	9
6	Data from the hour meter for the second latest PD	8 Byte	00008523
7	Third latest "1st PD" data	1 Byte	4
8	Third latest "2nd PD" data	1 Byte	3
9	Data from the hour meter for the third latest PD	8 Byte	00004335
10	Fourth latest "1st PD" data	1 Byte	2
11	Fourth latest "2nd PD" data	1 Byte	0
12	Data from the hour meter for the fourth latest PD	8 Byte	00000945
13	Fifth latest "1st PD" data	1 Byte	4
14	Fifth latest "2nd PD" data	1 Byte	0
15	Data from the hour meter for the fifth latest PD	8 Byte	00000715
16	Sixth latest "1st PD" data	1 Byte	A
17	Sixth latest "2nd PD" data	1 Byte	2
18	Data from the hour meter for the sixth latest PD	8 Byte	00000552
19	Seventh latest "1st PD" data	1 Byte	A
20	Seventh latest "2nd PD" data	1 Byte	0
21	Data from the hour meter for the seventh latest PD	8 Byte	00000213
22	Eighth latest "1st PD" data	1 Byte	D
23	Eighth latest "2nd PD" data	1 Byte	0
24	Data from the hour meter for the eighth latest PD	8 Byte	000001A7
CS		2 Byte	27

1, 2, 4, 5: PD data	
0	No PD
1	Not used
2	P-POWER
3	SCAN
4	SCN-5V
5	Y-DRIVE
6	Y-DCDC
7	Y-SUS
8	Address
9	X-DRIVE
A	X-DCDC
B	X-SUS
C	DIG-DCDC
D	Not used
E	Not used
F	UNKNOWN

### 9.3.8 QSD

#### ■ Acquisition of SD logs ••• [QSD]

The command QSD is for acquiring the data from the 8 latest shutdown (SD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QSD]	All operations	To acquire data on the shutdown logs	Return data: 3 (ECO)+80(DATA)+2(CS)= 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3Byte	QSD
1	Latest SD data	1byte	1
2	Latest SD subcategory data	1byte	0
3	Data from the hour meter for the latest SD	8byte	00752013
4	Second latest SD data	1byte	5
5	Second latest SD subcategory data	1byte	0
6	Data from the hour meter for the second latest SD	8byte	00495204
7	Third latest SD data	1byte	2
8	Third latest SD subcategory data	1byte	3
9	Data from the hour meter for the third latest SD	8byte	00100355
10	Fourth latest SD data	1byte	2
11	Fourth latest SD subcategory data	1byte	5
12	Data from the hour meter for the fourth latest SD	8byte	00075620
13	Fifth latest SD data	1byte	1
14	Fifth latest SD subcategory data	1byte	0
15	Data from the hour meter for the fifth latest SD	8byte	00000852
16	Sixth latest SD data	1byte	2
17	Sixth latest SD subcategory data	1byte	5
18	Data from the hour meter for the sixth latest SD	8byte	000000451
19	Seventh latest SD data	1byte	0
20	Seventh latest SD subcategory data	1byte	0
21	Data from the hour meter for the seventh latest SD	8byte	00000000
22	Eighth latest SD data	1byte	0
23	Eighth latest SD subcategory data	1byte	0
24	Data from the hour meter for the eighth latest SD	8byte	00000000
CS		2Byte	7D

● SD data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

● SD subcategory (SQ-IC)	
0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
6	Version mismatching

● SD subcategory (MDU-IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

● SD subcategory (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved

## 9.3.9 QS6

A **QS6** : Returning information of the Flash Device.

Format	Effective Condition	Function	Remarks
[QS6]	Every time	Output of status	

Order	Data	Size	Context
0	Received Command Name	3 byte	'QS6' only
01	Hardware Version of DTV	8 byte	
02	Hardware Serial of DTV	8 byte	
03	Runtime Version of DTV	8 byte	
04	CFE Version	8 byte	
05	KERNEL Version	8 byte	
06	ROOTFS Version	8 byte	
07	FLAGS Information 1	1 byte	
08	FLAGS Information 2	1 byte	
09	FLAGS Information 3	1 byte	
10	FLAGS Information 4	1 byte	
11	FLAGS Information 5	1 byte	
12	FLAGS Information 6	1 byte	
13	Version of CCD-UCOM	4 byte	
14	HMG/HG MODELE Version	10byte	
15	User Password	4 byte	
16	Check Sum	2 byte	

C

D

E

F



## 9.3.10 QSI

### ■ Acquisition of input signal data ••• [QSI]

The command QSI is for acquiring all data on input video signals.

Command Format	Effective Operation Modes	Function	Remarks
[QSI]	All operations	To acquire all data on input video signals	Return data: 3 (ECO)+66(DATA)+2(CS)= 71 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QSI
1	Type of drive sequence	3 Byte	60V
2	Standard/nonstandard	1 Byte	S
3	Type of ABL/WB tables	2 Byte	T1
4	Total value of PCN	4 Byte	0256
5	Total value of PRH	4 Byte	0256
6	Total value of PGH	4 Byte	0256
7	Total value of PBH	4 Byte	0256
8	Total value of PBR	4 Byte	0512
9	Total value of PRL	4 Byte	0512
10	Total value of PGL	4 Byte	0512
11	Total value of PBL	4 Byte	0512
12	Total value of ABL	3 Byte	128
13	Detection of V frequency	4 Byte	6002
14	Detection of existence of H	1 Byte	Y
15	Reserved	3 Byte	***
16	Obtained APL data	4 Byte	1023
17	Number of SUS pulses	4 Byte	0457
18	Result of detection of still picture	1 Byte	1
19	Result of detection of cracking in the panel	1 Byte	1
20	Result of detection for scanning protection	1 Byte	1
21	Result of detection for external protection	1 Byte	1
22	Transition of protection operation	1 Byte	0
23	Reserved	4 Byte	****
CS		2 Byte	27

14: Detection of existence of H	
N	No H
Y	H detected

18 to 20: Each protection operation status	
0	Setting OFF
1	Setting ON (waiting)
2	Setting ON (during operation)

22: Transition of brightness by protection operation	
0	Upper limit state for brightness
1	Brightness being reduced
2	Lower limit state for brightness
3	Brightness being increased

### 9.3.11 QMT

**QMT** : Returning information of temperature and FAN speed.

Format	Effective Condition	Function	Remarks
[QMT]	Every time	Output of status	MTB-side's temperature/FAN rotating status

Order	Data	Size	Context
0	Received Command Name	3 byte	'QMT' only
1	MTB Temperature	3 byte	
2	MTB FAN Speed	1 byte	0: STOP 1:LOW 2:HIGH
3	Cjheck Sum	2 byte	

### 9.3.12 QNG

**QNG** : Returning data (logs keep on Main microcomputer) on shutdown of Multi-Tuner Base.

Format	Effective Condition	Function	Remarks
[QNG]	Every time	Output of status	

Order	Data	Size	Context
0	Received Command Name on MTB	3 byte	'QNG' only
01	Latest NR data	1 byte	
02	Data of subcategory for the latest NG	1 byte	
03	Data of MTB hour meter for the latest NG	7 byte	
04	Data of temperature for the latest NG	3 byte	
05	2'st latest NG data	1 byte	
06	Data of subcategory for the 2'st latest NG	1 byte	
07	Data of MTB hourmeter for the 2'st latest NG	7 byte	
08	Data of temperature for the 2'st latest NG	3 byte	
09	3rd latest NG data	1 byte	
10	Data of subcategory for the 3rd latest NG	1 byte	
11	Data of MTB hourmeter for the 3rd latest NG	7 byte	
12	Data of temperature for the 3rd latest NG	3 byte	
:	:	:	
29	8'st latest NG data	1 byte	
30	Data of subcategory for the 7'st latest NG	1 byte	
31	Data of MTB hour meter for the 7'st latest NG	7 byte	
32	Data of temperature for the 7'st latest NG	3 byte	

#### ■Details of Data and subcategory

<SD Information No.>		
Data	Cause of shutdown	Remarks
0	Normal	
1	failure of communication to Module microcomputer	MODULE (immediately Shutdown)
2	3-wire serial communication of Main microcomputer	Go to subcategory ⇒ No.1
3	IIC communication failure of Main microcomputer & Unknown error	Go to subcategory ⇒ No.2
4	communication failure of Main microcomputer	MAIN (immediately Power Supply OFF)
5	FAN stopped	FAN (immediately Power Supply OFF)
6	Abnormally high temperature at MTB.	TEMP2 (After 30second warning, ture Power Supply off)
7	failure of Digital Tuner	Go to subcategory ⇒ No.3
8	failure of Power Supply	Go to subcategory ⇒ No.4
B	Speaker short-circuit	After 3 second warning, turn the Power Supply OFF.

<No.1 Subcategory Information on "failure in 3-wire serial communication of Main microcomputer">		
Data	Cause of shutdown	Remarks
0	Non subcategory	
1	IF microcomputer communication failure	IF (immediately Power Supply OFF)
2	MANTA communication failure (MULTI1)	MULTI1 (immediately Power Supply OFF)
4	MANTA communication failure (I/P)	I/P
5	MANTA communication failure (D-SEL)	D-SEL

<No.2 Subcategory Information on "failure in IIC communication of Main microcomputer">		
Data	Cause of shutdown	Remarks
0	Non subcategory	
1	Analog Tuner 1 (Front End 1)	FE1 (immediately Power Supply OFF)
2	Analog Tuner 2 (Front End 2)	FE2 (immediately Power Supply OFF)
3	MPX	
4	AV Switch	AV-SW (immediately Power Supply OFF)
5	RGB Switch	RGB-SW (immediately Power Supply OFF)
6	CCD	CCD (immediately Power Supply OFF)
8	Main VDEC	M-VDEC (immediately Power Supply OFF)
A	AD/PLL	ADC (immediately Power Supply OFF)
B	HDMI	HDMI (immediately Power Supply OFF)
G	64k EEPROM	MA-FEP (immediately Power Supply OFF)
H	AUDIO IC	

<No.3 Subcategory Information on "Digital Tuner">		
Data	Cause of shutdown	Remarks
0	Non subcategory	
1	Failure to DTB Starting	PS/RST (immediately Power Supply OFF)
3	DTV Device Error	Device (immediately Power Supply OFF)
5	TV-Guide Error	TV-G (immediately Power Supply OFF)
7	Home Gallery Application communication error.	HOME-G (communication error (Retry 16 times) →Do not return after 2 times of soft reset)

<No.4 Subcategory Information on "POWER">		
Data	Cause of shutdown	Remarks
1	DCDC Converter Power Supply reduced	M-DCDC (immediately Power Supply OFF)
2	Relay Power Supply reduced	RELAY (immediately Power Supply OFF)

### 9.3.13 DRV

#### ■ DRV

Drive ON/OFF : ON/OFF control for only the large-power system

Format	Effective Condition	Function	Remarks
[DRV+S00]	Every time	DRIVE OFF	At standby mode, when 10 seconds passed after issuing [DRV+S00], command becomes invalid.
[DRV+S01]		DRIVE ON	

■

Commands for prohibition/permission of DTV/HomeNet communication

A

Control device: DTV & HomeNet  
Memory: ON/OFF of DTV communication prohibition mode  
Applicable models: Only for models for North America

■

Functions

■

This is a command for forcibly prohibiting communication with DTV (for Elite series panels, communication using HomeNet is included).

■

Normally, after the panel and the connected DTV are turned on, any operation is prohibited on the panel until startup of the DTV is completed. However, on the production line, to avoid a drain on productivity, such waiting time must be shortened. Thus, for the processes where the DTV is not necessary, such as panel adjustment, the existence of the DTV can be ignored, to shorten waiting time.

■

Commands

■

DTN	S00	To exit DTV/HomeNet Communication
	S01	To enter DTV/HomeNet Communication

■

Operations

C

[DTNS01]  
<Effective operation mode>  
Factory Operation mode  
**Note:** This command must be effective even if the Assy is used alone or installed in the unit.

- 
- Having entered DTV/HomeNet Communication Prohibition mode must be stored in memory.
  - The blue LED flashes rapidly to indicate that DTV/HomeNet Communication Prohibition mode is active.



- D
- The next resetting of the main microcomputer is canceled, the main microcomputer judges that DTNS01 is established, then communication with DTV/HomeNet will be prohibited. In such a case, any user operations (FAY command, etc.) entered immediately after the unit is turned on must be effective. Also, any operations other than DTV/HomeNet operations must be effective in the same way as during DTNS00.

■

[DTNS00]  
<Effective operation mode>  
Factory Operation mode  
**Note:** This command must be effective even if the Assy is used alone or installed in the unit.

- E
- Having entered DTV/HomeNet Communication Permission mode must be stored in memory.
  - It is not necessary to immediately restore communication with DTV/HomeNet. DTV/HomeNet communication must be restored until resetting of the main microcomputer is canceled next time.

■

Supplement

- F
- While ZACS01 is established, the LED for ZAC flashes. The priority of LED indications is as follows:  
PD > Trap-SW > DTV\_STB > SD > ZAC >DTN > no backup copy > Standalone operation of the Assy > Normal ON/OFF
  - Even if DTNS00 is established, if ZACS01 is established, DTV/HomeNet communication must be prohibited.

### ■ Setting for Factory mode permission/prohibition ••• [FAY/FAN]

The commands FAY/FAN are for prohibiting/permitting panel-adjustment commands.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAY]	Normal operation mode while the power is on	Adjust command is valid.	Mask indications will be forcibly turned off.
[FAN]	During FAY	Adjust command is invalid.	

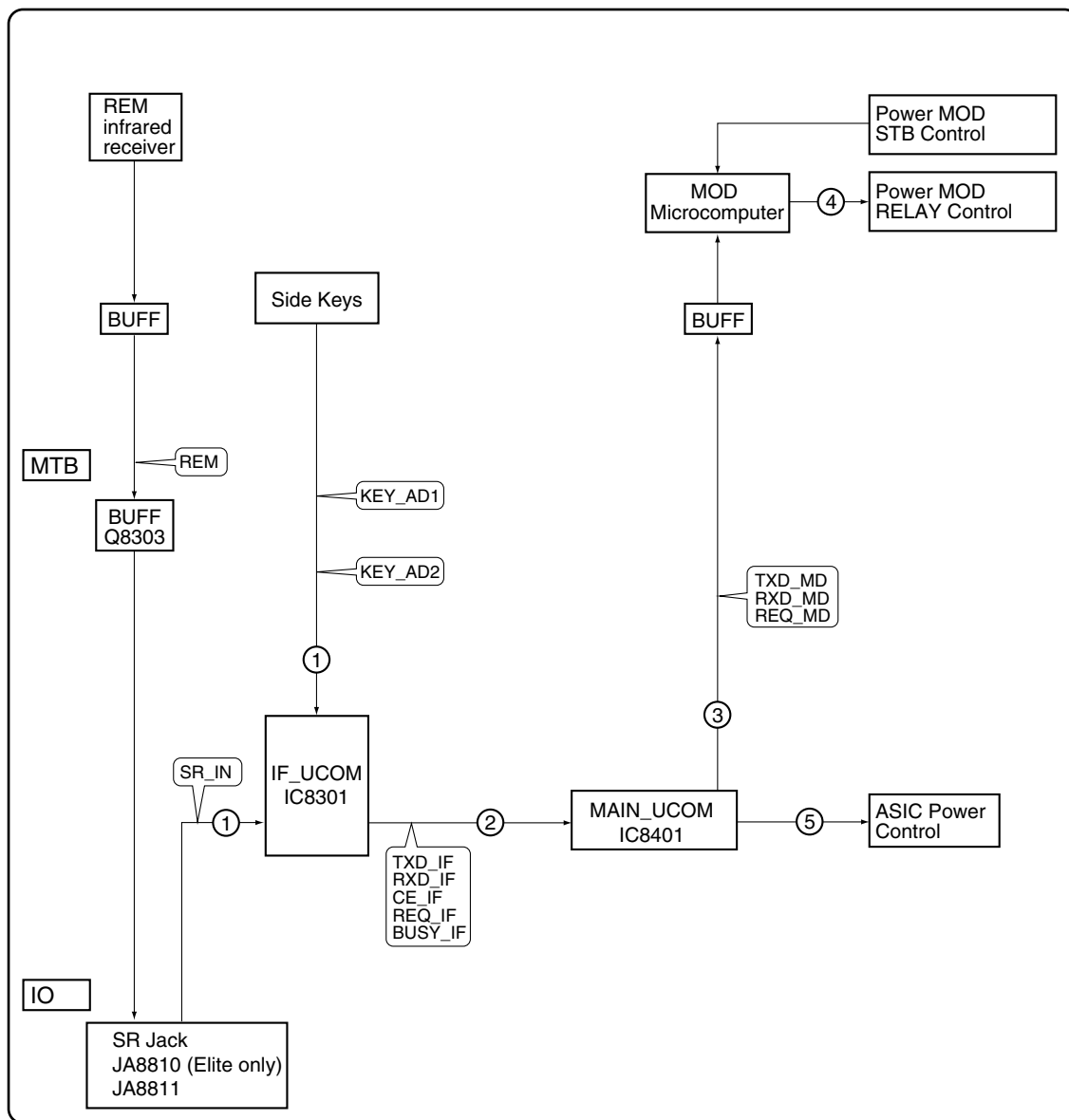
### ■ Backup function for adjustment values for the main unit ••• [FAJ/UAJ/CBU/BCP]

When the DIGITAL Assy is to be replaced, adjustment values can be copied from the backup EEPROM to the EEPROM of the Assy for service.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAJ]	During FAY	To make the flag setting that indicating that adjustment of the panel unit has been completed	Writing 00 to the 4 k byte ROM and copying to the 2 k byte ROM
[UAJ]		To make the flag setting that indicating that adjustment of the main unit has not been completed	Writing F0 to the 4 k byte ROM
[CBU]		To make the flag setting that indicating that backup data have not been copied	Writing F0 to the 2 k byte ROM
[BCP]		To copy Digital backup data to EEPROM	Copying backup data
			This takes at least 350 ms.
			The backup ROM is initialized.

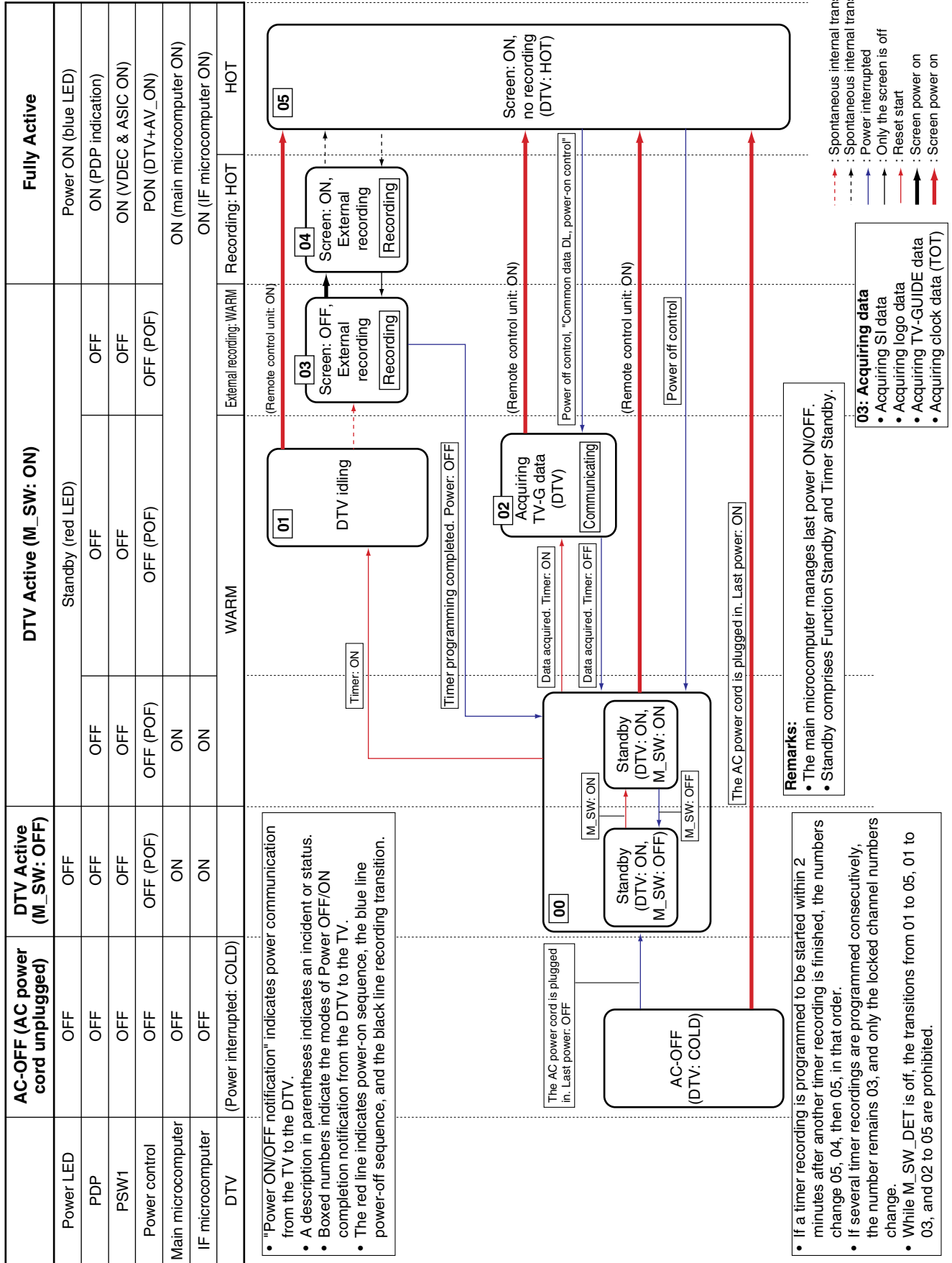
# 10. GENERAL INFORMATION

## 10.1 POWER ON SEQUENCE

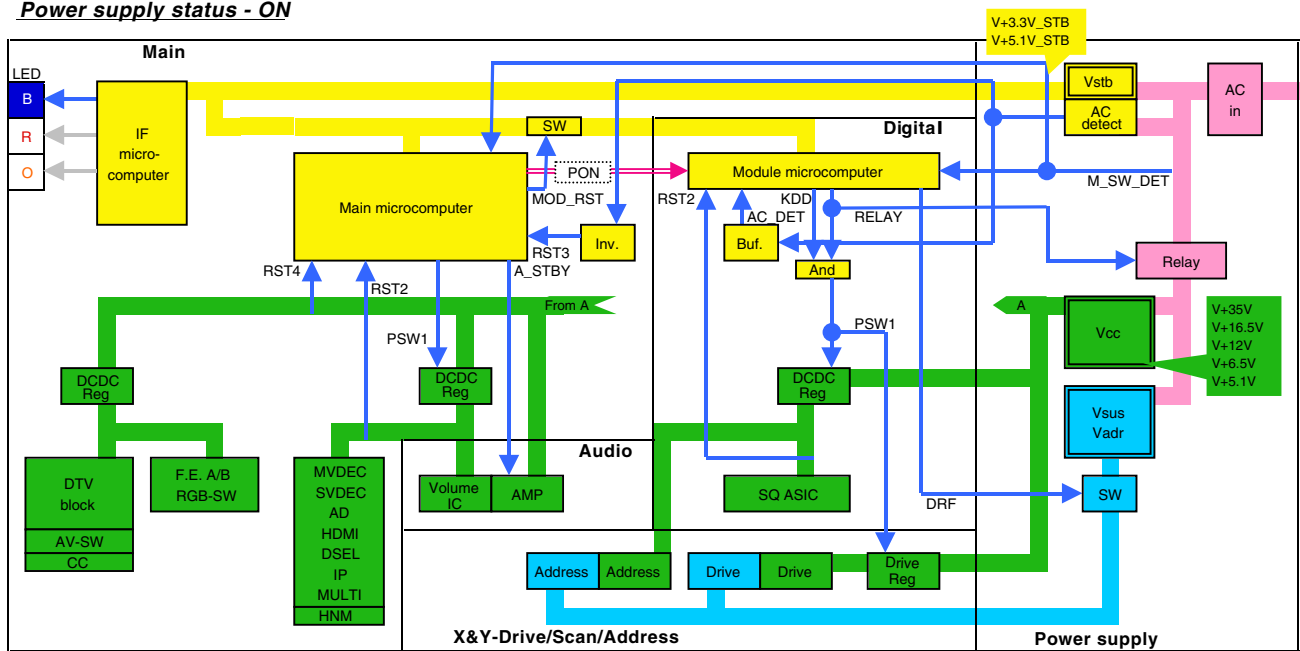


- ① : The remote control (or KEY) signal is input to the IF microcomputer.
- ② : The IF microcomputer sends the operation data to the main microcomputer.
- ③ : The main microcomputer issues a startup command (PON) to the MOD microcomputer.
- ④ : The MOD microcomputer controls the relay of the power MOD of the PDP to startup the power of the PDP.
- ⑤ : The main microcomputer controls the ASIC power within the MTB to startup the power of the MTB.

## 10.2 POWER SUPPLY TRANSITION STATUS



A

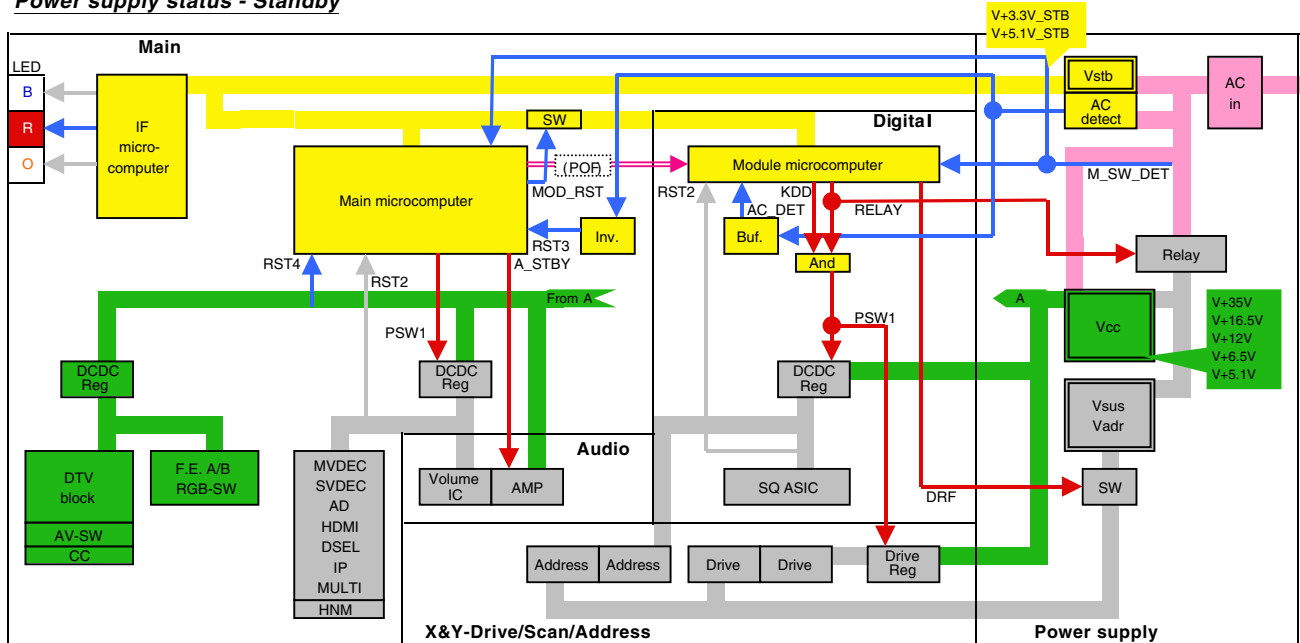
**Power supply status - ON**

B

C

D

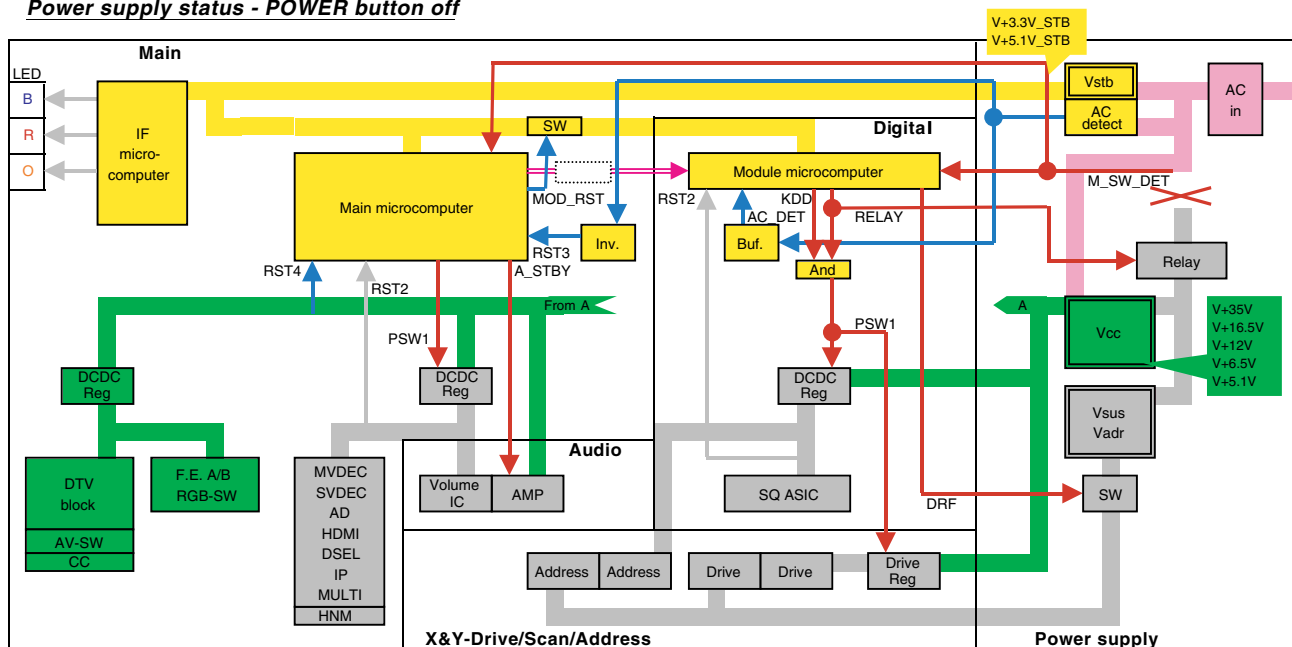
E

**Power supply status - Standby**

F

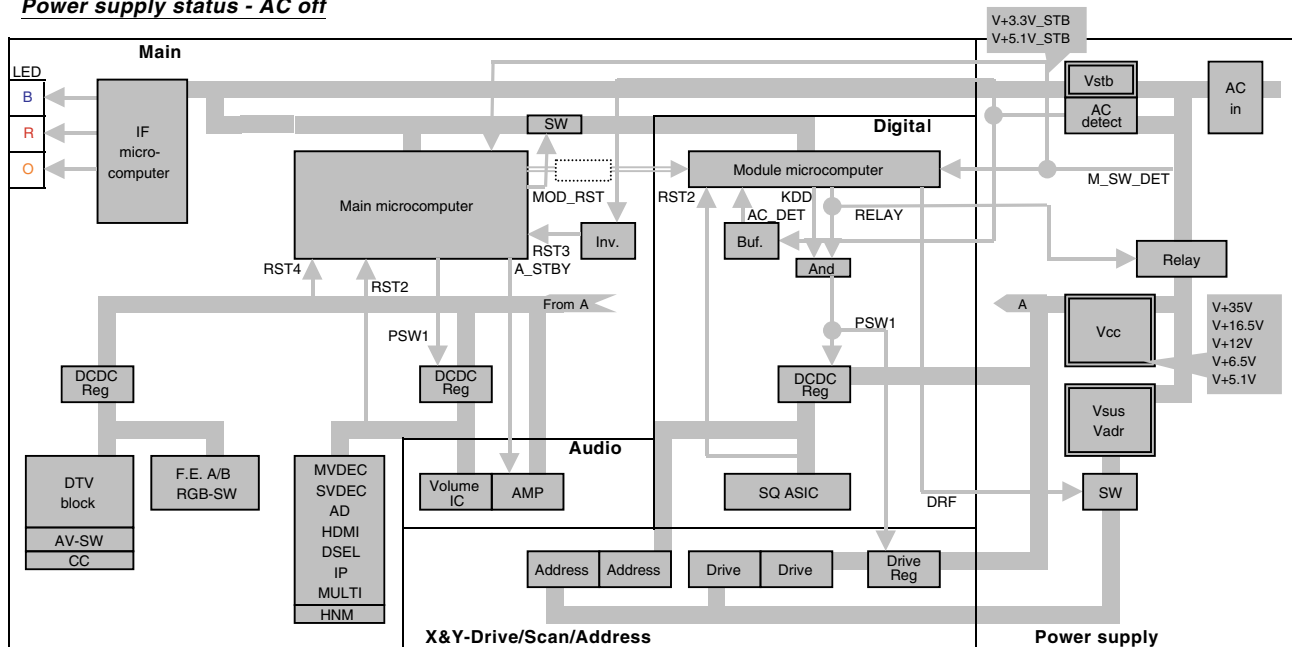


### Power supply status - POWER button off



This state of the power supply is the same as the Standby mode.  
However, all LED is turned off, and the operation by the user is not effective.

### Power supply status - AC off



## 10.3 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM

**Function:** It is an operational mode where the digital signal processing performs circuit operation but the power is not supplied to the panel driving system (large signal system) in order to avoid a power down.

**Application:**

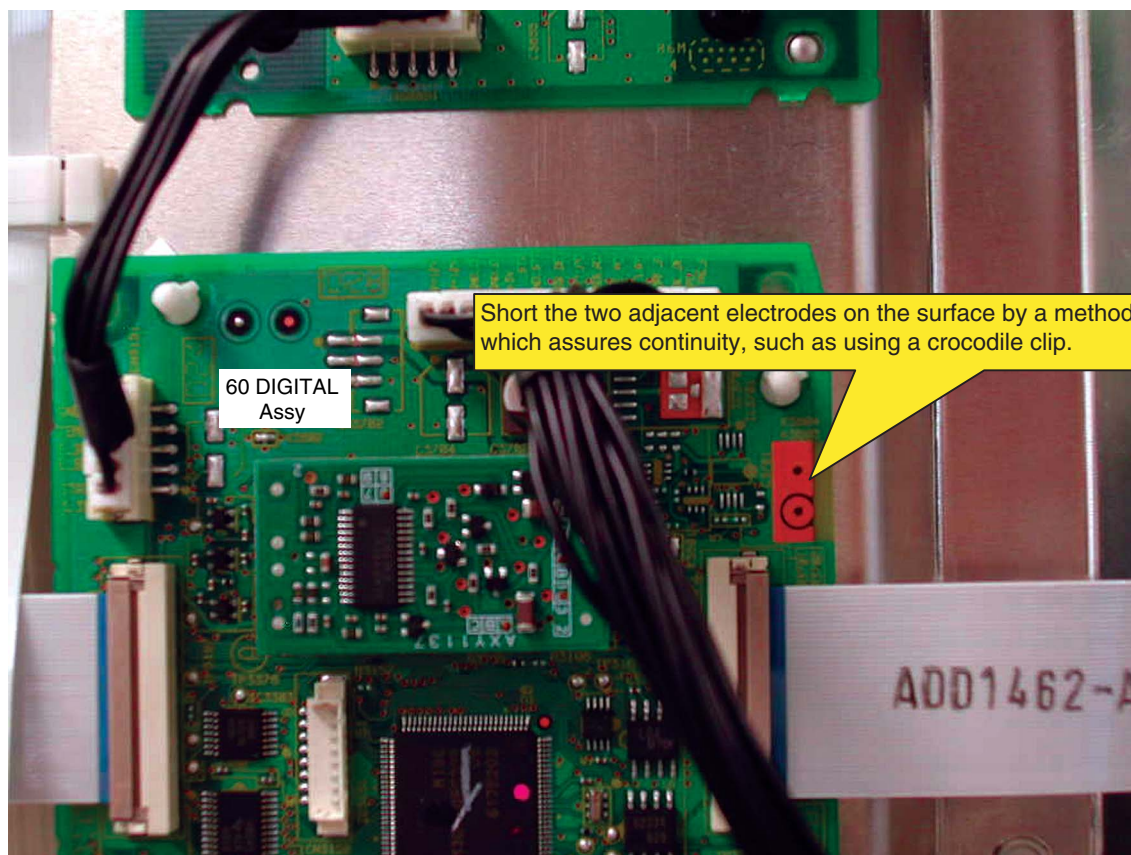
1. When it is necessary to check whether the signal output is correctly reaching the drive system in a repairing activity etc.
2. In the case of a PD, to determine whether the problem is with the large signal system power supply or with the small signal system power supply.

**Method:**

1. Make shorting between the specified location (refer to the illustration below) of the PCB surface of the DIGITAL ASSY and the nearby pattern.
2. Execute [DRV S00] by RS232C command. ([DRV S01] for release)

**Supplemental explanation:**

- When the large signal system power supply is in OFF state, there will be no PD, except PS\_PD, as the PD signal has been muted.
- If the clip is removed in the OFF state of the large signal system power supply, PD will take place at the instance of clip removal. Therefore, be sure to remove the clip after turning the power OFF.
- Under RS232C command control, [DRVS01] (release) is possible during power ON. However, there is a possibility of damaging the set. Therefore, make this operation only after turning the power OFF.
- Command [DRVS00/S01] is effective even during standby. When the main power is turned OFF, however, [DRVS01] (release) will be effective.



# 10.4 LED INFORMATION

## LED Pattern



State	LED Pattern
AC OFF or Main power switch OFF	<div>Blue</div> <div>Red</div> <div>Orange</div>
Standby management	<div>Blue</div> <div>Red</div> <div>Orange</div>
Power ON	<div>Blue</div> <div>Red</div> <div>Orange</div>
Power-down	<div>Blue</div> <div>Red</div> <div>Orange</div> <div>1 time 500 msec 2 time n time 2.5 sec 1 time</div>
Shutdown	<div>Blue</div> <div>Red</div> <div>Orange</div> <div>1 time 500 msec 2 time n time 2.5 sec 1 time</div>
No digital adjustment data copied for backup	<div>Blue</div> <div>Red</div> <div>Orange</div> <div>200 msec</div>
In the process of rewriting the program of the microcomputer	<div>Blue</div> <div>Red</div> <div>Orange</div> <div>100 msec</div>
Trap switch	<div>Blue</div> <div>Red</div> <div>Orange</div>
During reservation video recordings (Unit: Standby)	<div>Blue</div> <div>Red</div> <div>Orange</div>
During reservation video recordings (Unit: ON)	<div>Blue</div> <div>Red</div> <div>Orange</div> <div>* Only the model with the reservation video recording function</div>
RS-232C <=> SR+ switch	<div>Blue</div> <div>Red</div> <div>Orange</div> <div>200 msec</div>

\* The change of HI / LO have hysteresis curve below.

A

C

When executing [FCNS00], [FCNS01], [FCNS02] command, detect the FAN\_NG signal. When NG is detected, it becomes shutdown. When [FCNS03] command is executed, FAN\_NG detection is not operated.

D

This model control the FAN drive by pin 149 (FAN ON / OFF) and pin 17 (Change of FAN control voltage) of MAIN U-com.

Power	PSW1	State	Control	Fan Operation
ON OFF	ON	ON STB	According to the reading value of above table sensor. FAN_CONT: "L"	HIGH or LO OFF

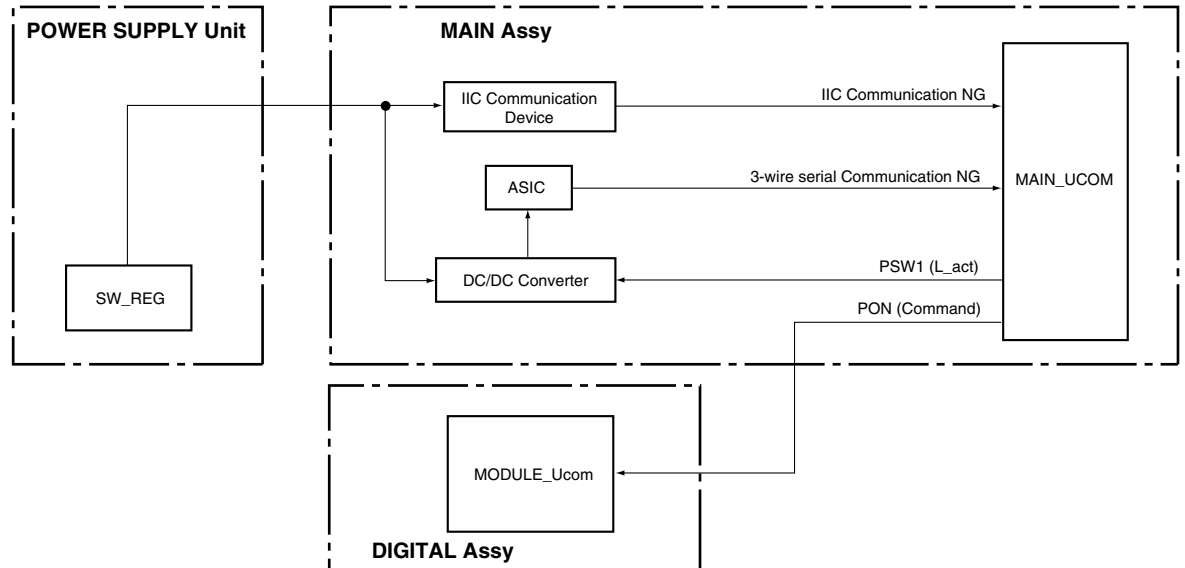
## E



## 10.6 PROCESSING IN ABNORMALITY

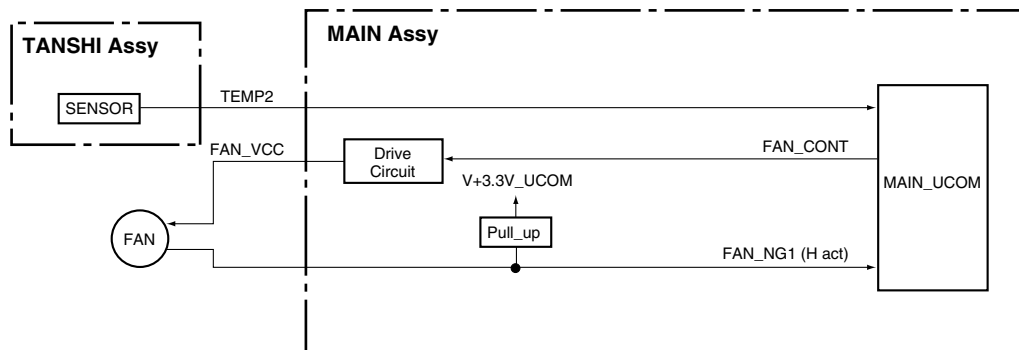
### Power supply and DC-DC converter

#### ● Circuit diagram



### Fan and temperature sensor

#### ● Circuit diagram

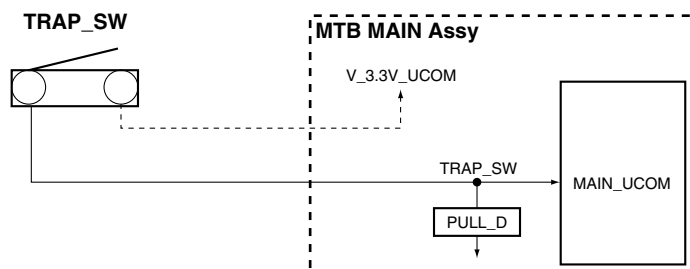


#### ● Specifications for port monitoring

Port Name	SD/PD Indication	Assigned Pin	Active
FAN_NG 1	FAN	155	Shutdown with H
TEMP2	Abnormally high temperature in the MR	76	Shutdown when the value exceeds the predetermined value

### TRAP\_SW

#### ● Circuit diagram



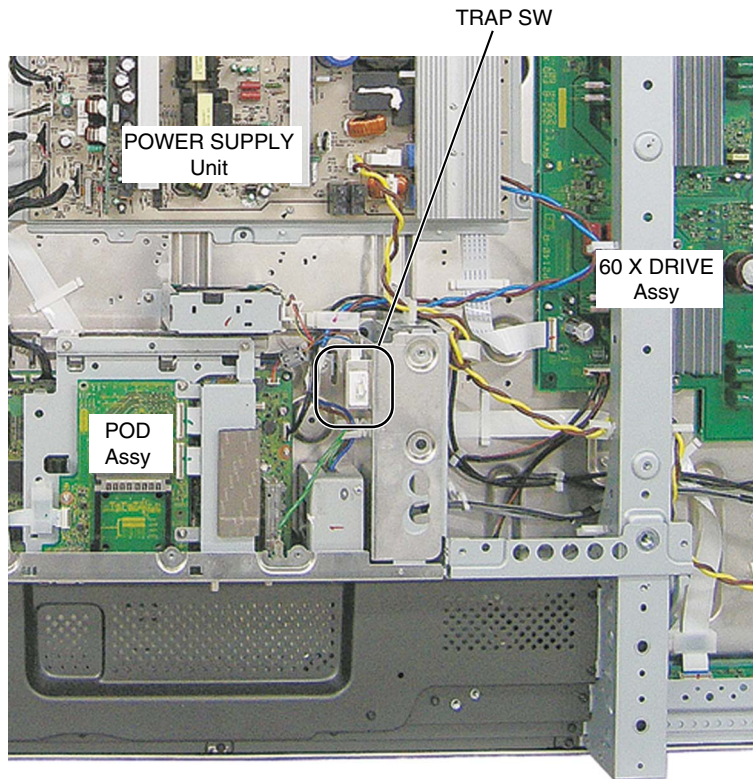
## 10.7 TRAP SW

### ● Outline and Notes

For video data transmission inside this Plasma Display, digital signals are used. Therefore, this unit adopts the HDCP (High-bandwidth Digital Content Protection) system for copyright protection. This unit is also provided with a detection switch (TRAP switch) that will prohibit the unit from being turned on again "if the upper plate of the unit is accidentally opened," in order to prevent the panel technology from being leaked out.

The TRAP switch is disabled while the unit is turned off.

When performing internal diagnosis of the PDP, fix the switch to the OFF position using adhesive tape before turning on the unit. After servicing, be sure to remove the adhesive tape.



### WHEN THE TRAP SW WORKS

Just in case the TRAP SW works, the red and green LEDs may be lighting. After closing the bonnet or dealing with the TRAP SW on ahead, carry out either following ( 1 ) or ( 2 ) procedure from this state.

#### ( 1 ) Cancelling by the remote control

- Enter to the Factory mode.
- Then, proceed to INITIALIZE layer inside the Factory mode, and then press "DISPLAY" key for more than 5 seconds.

#### ( 2 ) Cancelling by the RS-232C

- Send the cancelling command "CTM".

# 11. SPECIFICATIONS

## 11.1 MAIN SPECIFICATIONS

### Specifications

Item			60" Plasma Display Model: PDP-6072HD/PDP-6071HD/ PDP-6070HD	50" Plasma Display Model: PDP-5072HD/PDP-5071HD/ PDP-5070HD	42" Plasma Display Model: PDP-4272HD/PDP-4271HD/ PDP-4270HD	
Number of pixels			1365 ◇ 768 pixels	1365 x 768 pixels	1024 x 768 pixels	
Audio Amplifier			13 W + 13 W (1 kHz, 10 %, 8 Ω)	13 W + 13 W (1 kHz, 10 %, 8 Ω)	13 W + 13 W (1 kHz, 10 %, 8 Ω)	
Speakers			—	Woofer: 4.8 cm x 13 cm cone type Tweeter: 2.5 cm semidome type	Woofer: 4.8 cm x 13 cm cone type Tweeter: 2.5 cm semidome type	
Surround System			SRS/FOCUS/TruBass	SRS/FOCUS/TruBass	SRS/FOCUS/TruBass	
Power Requirement			120 V AC, 60 Hz, 455 W (30 W Standby)	120 V AC, 60 Hz, 351 W (26 W Standby)	120 V AC, 60 Hz, 308 W (26 W Standby)	
Weight			Main unit: 51.5 kg (113.6 lbs.)	Main unit: 34.1 kg (75.2 lbs.) Stand: 4.3 kg (9.5 lbs.) (including bolts) Speaker system: 3.3 kg (7.3 lbs.) (including cables, mounting fittings and screws) Total: 41.7 kg (92 lbs.)	Main unit: 29 kg (64 lbs.) Stand: 2.5 kg (5.5 lbs.) (including bolts) Total: 31.5 kg (69.5 lbs.)	
Reception System (Digital)			ATSC Digital TV system			
Circuit type			8VSB/64QAM/256QAM/QPSK demodulation			
Tuner			VHF/UHF	VHF Ch. 2 to 13 UHF Ch. 14 to 69		
			CATV	Ch. 2 to 135		
Audio format			Dolby Digital			
Reception System (Analog)			American TV standard NTSC system			
Circuit type			Video signal detection PLL full synchronous detection, PLL digital Synthesizer system			
Tuner			VHF/UHF	VHF Ch. 2 to 13 UHF Ch. 14 to 69		
			CATV	ANT/CABLE A IN Ch. 1 to 135 ANT B IN Ch. 1 to 125		
Audio multiplex			BTSC system			
Terminals	Rear	ANT/CABLE A IN	75 Ω UNBAL, F Type for DTV/VHF/UHF/CATV in			
		ANT B IN	75 Ω UNBAL, F Type for VHF/UHF/CATV in Loop out			
		INPUT 1	S-VIDEO in, VIDEO in, AUDIO in			
		INPUT 2	COMPONENT VIDEO in, S-VIDEO in, VIDEO in, AUDIO in			
		INPUT 3	COMPONENT VIDEO in, AUDIO in			
		PC	Analog RGB in, AUDIO in			
		INPUT 5	HDMI in*, AUDIO in			
		INPUT 6	HDMI in*, AUDIO in			
		MONITOR OUT	VIDEO out, AUDIO out			
		Digital Audio Output	Optical			
		G-LINK	1			
		CONTROL OUT	1			
		SPEAKER	8 Ω to 16 Ω	8 Ω to 16 Ω	—	
		SUB WOOFER OUTPUT	Variable			
		CableCARD	Point of Deployment			
	Side	INPUT 4	COMPONENT VIDEO in, VIDEO in, AUDIO in			
		USB	USB in**			
	On-screen display languages			English/French/Spanish		

\* This conforms to HDMI1.1 and HDCP1.1.

HDMI (High Definition Multimedia Interface) is a digital interface that handles both video and audio using a single cable. HDCP (High-bandwidth Digital Content Protection) is a technology used to protect copyrighted digital contents that use the Digital Visual Interface (DVI).

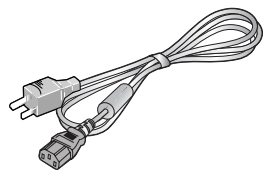
\*\* This conforms to USB 1.1 and 2.0 .

Design and specifications are subject to change without notice.

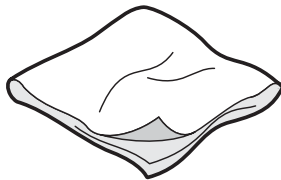


## 11.2 ACCESSORIES

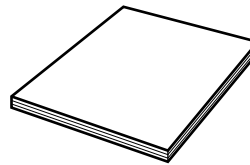
### Supplied Accessories



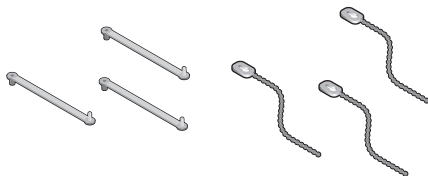
Power cord (2 m/6.6 feet)



Cleaning cloth

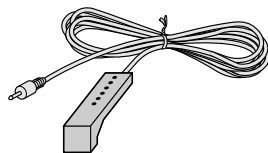


Operating instructions

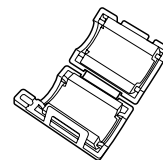


Speed clamp 3

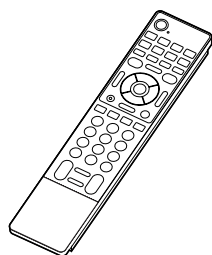
Bead band 3



G-LINK cable (3 m/9.8 feet)



Ferrite core



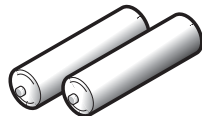
Remote control unit



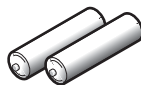
Simplified remote control unit\*  
(for PDP-6071HD/PDP-5071HD/  
PDP-4271HD only)



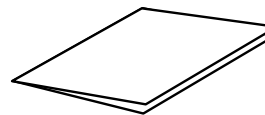
Hexagonal wrench x 1  
(Diagonal size: 6 mm)  
(except 60-inch models)



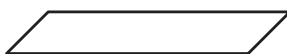
AA size battery x 2  
(Alkaline battery for  
remote control unit)



AAA size battery x 2  
(Manganese battery for simplified  
remote control unit)  
(for PDP-6071HD/PDP-5071HD/  
PDP-4271HD only)



Warranty card



Terminal position sheet  
(for use when mounting the Plasma Display on the wall)  
(PDP-6072HD/PDP-6071HD/PDP-6070HD only)

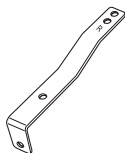
### Speaker accessories

(for PDP-5072HD/PDP-5071HD/PDP-5070HD only)

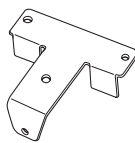
#### Speaker Mounting Fittings



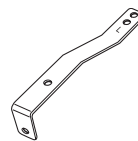
Speaker Cable 2



Bracket for Right Side



Bracket for Center



Bracket for Left Side



Speaker Mounting Screw  
(M5 10 mm: Black) x 9

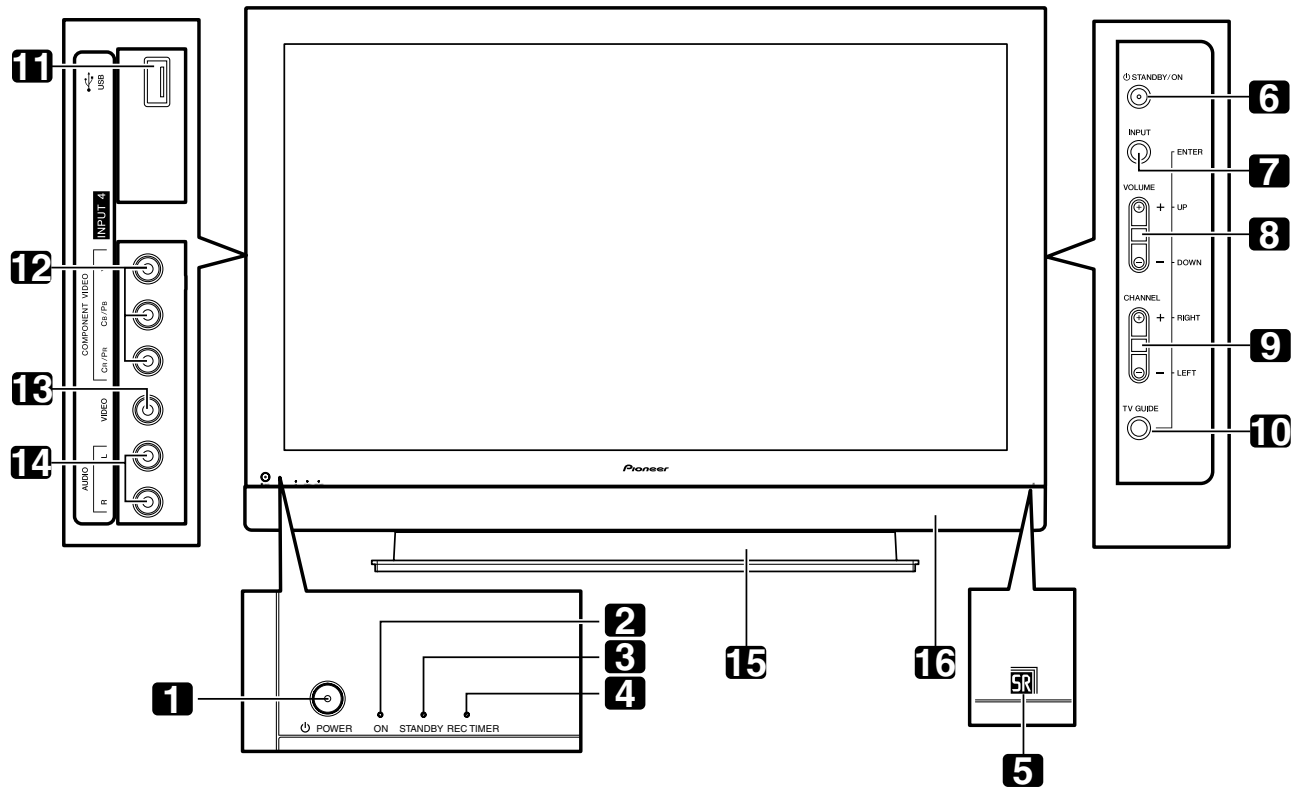
\* Buttons used for only basic operations are provided on the simplified remote control unit. You can use it as necessary.



## Plasma Display

Front/side view

(PDP-6072HD/PDP-6071HD/PDP-6070HD)



1 **POWER** button

2 **POWER ON** indicator

3 **STANDBY** indicator

4 **REC TIMER** indicator

5 **Remote control sensor**

(Side view)

6 **STANDBY/ON** button

7 **INPUT** button (**ENTER** button\*)

8 **VOLUME UP/DOWN** buttons (**UP/DOWN** buttons\*)

9 **CHANNEL UP/DOWN** buttons (**LEFT/RIGHT** buttons\*)

10 **TV GUIDE** button\*

11 **USB port**

12 **INPUT 4** terminals (COMPONENT VIDEO: Y, Cb/Pb, Cr/Pr)

13 **INPUT 4** terminal (VIDEO)

14 **INPUT 4** terminals (AUDIO)

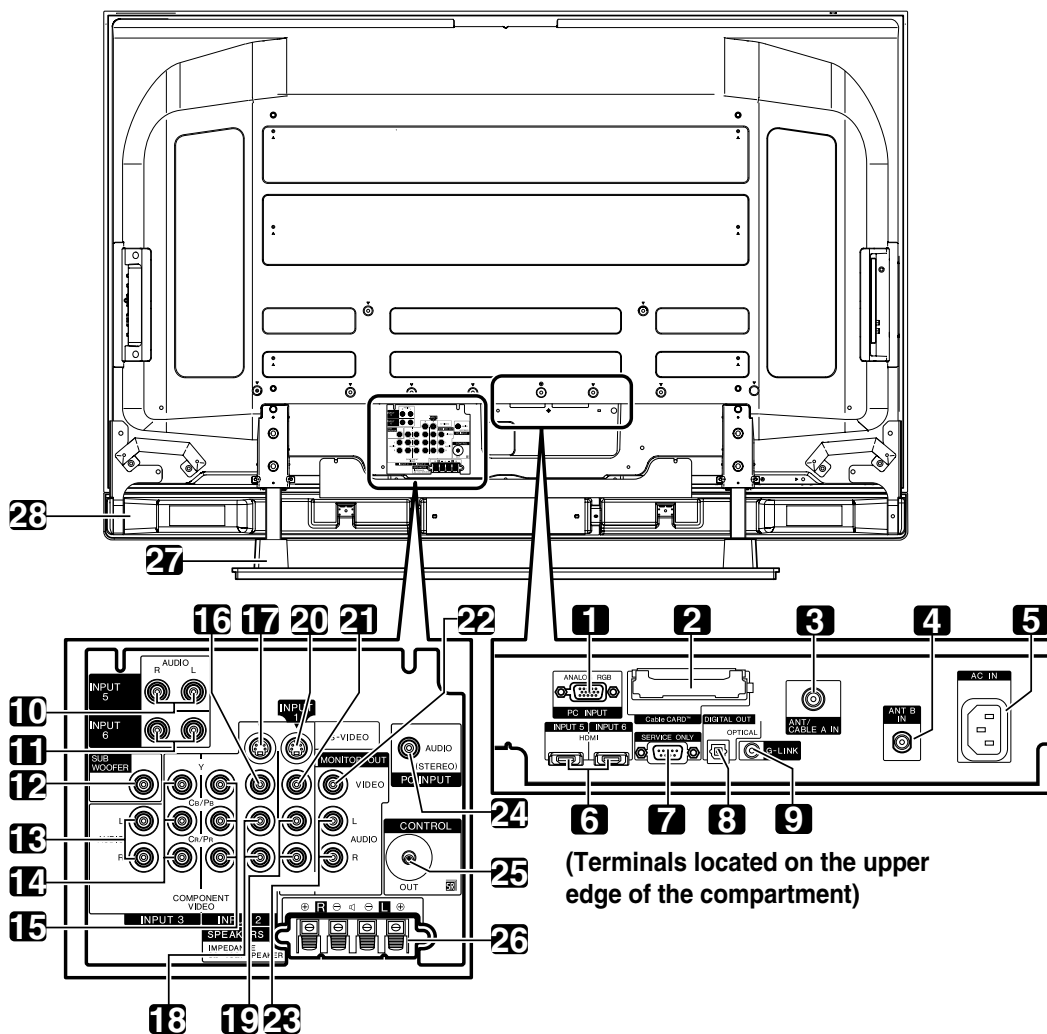
15 **Stand**: PDK-TS15 for the PDP-6072HD  
PDK-TS15U for the PDP-6071HD/  
PDP-6070HD

16 **Speaker**: PDP-S41

For details, refer to the operation manual that came with the stand or speaker.

The buttons with asterisks (\*) can operate the TV Guide On Screen™ system.

A **Rear view**  
(PDP-6072HD/PDP-6071HD/PDP-6070HD)



(Terminals located on the upper edge of the compartment)

1 PC INPUT terminal (ANALOG RGB)

2 CableCARD™ slot

3 ANT/CABLE A IN terminal

4 ANT B IN terminal

5 AC IN terminal

6 HDMI terminals (INPUT 5/INPUT 6)

7 RS-232C terminal (used for factory setup)

8 DIGITAL OUT terminal (OPTICAL)

9 G-LINK terminal

10 INPUT 5 terminals (AUDIO)

11 INPUT 6 terminals (AUDIO)

12 SUB WOOFER terminal

13 INPUT 3 terminals (AUDIO)

14 INPUT 3 terminals (COMPONENT VIDEO: Y, CB/PB, CR/PR)

15 INPUT 2 terminals (COMPONENT VIDEO: Y, CB/PB, CR/PR)

16 INPUT 2 terminal (VIDEO)

17 INPUT 2 terminal (S-VIDEO)

18 INPUT 2 terminals (AUDIO)

19 INPUT 1 terminals (AUDIO)

20 INPUT 1 terminal (S-VIDEO)

21 INPUT 1 terminal (VIDEO)

22 MONITOR OUT terminal (VIDEO)

23 MONITOR OUT terminals (AUDIO)

24 PC INPUT terminal (AUDIO)

25 CONTROL OUT terminal

26 SPEAKER (R/L) terminals

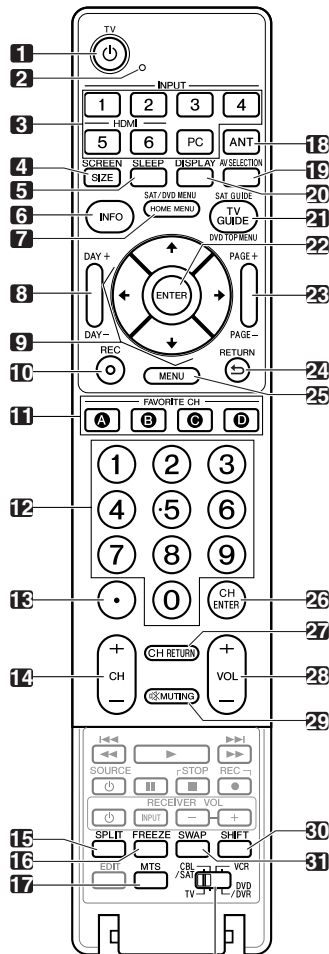
27 Stand: PDK-TS15 for the PDP-6072HD  
PDK-TS15U for the PDP-6071HD/  
PDP-6070HD

28 Speaker: PDP-S41

For details, refer to the operation manual that came with the stand or speaker.

## Remote control unit

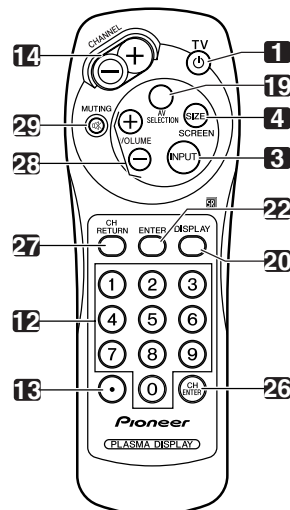
This section describes the functions of the buttons available when the mode switch has been set to TV. For the buttons for controlling other equipment, see "Using the remote control unit to control other devices".



Mode switch  
(with "TV" selected)

## Simplified remote control unit

(PDP-6071HD/PDP-5071HD/PDP-4271HD only)



- 1 **TV** : Turns on the power to the Plasma Display System or places it into standby mode.
- 2 Transmission confirmation LED
- 3 **INPUT**: Selects an input source of the Plasma Display System. (INPUT 1, INPUT 2, INPUT 3, INPUT 4, INPUT 5, INPUT 6 and PC) (With the simplified remote control unit, **INPUT** toggles between ANT-A, ANT-B, INPUT 1, INPUT 2, INPUT 3, INPUT 4, INPUT 5, INPUT 6 and PC.)
- 4 **SCREEN SIZE**: Selects the screen size.
- 5 **SLEEP**: Sets the sleep timer.
- 6 **INFO**: Displays a channel banner when a TV program is being watched.  
When the TV Guide On Screen<sup>®</sup> system is in operation, displays information about the currently highlighted channel (if available).
- 7 **HOMEMENU**: Displays the Home Menu screen.
- 8 **DAY +/-**: Jumps to the next or previous day of program listings in the TV Guide On Screen Listing service.
- 9 **▲/▼/◀/▶**: Selects a desired item on the menu screen.
- 10 **REC**: When using the TV Guide On Screen<sup>®</sup> System, starts recording with a connected VCR.
- 11 **FAVORITE CH (A, B, C, D)**: Selects any of the four preset channels. See page 49 for details to set the FAVORITE CH.  
While watching, you can toggle the set channels by pressing **A, B, C** and **D**.
- 12 **0-9**: Selects the channel.
- 13 **.(dot)**: Enters a dot.
- 14 **CH +/-**: Selects the channel.
- 15 **SPLIT**: Switches the screen mode among 2-screen, picture-in-picture, and single-screen.
- 16 **FREEZE**: Freezes a frame from a moving image. Press again to cancel the function.
- 17 **MTS**: Selects MTS/SAP or language depending on the program being watched.
- 18 **ANT**: Selects the antenna (A, B). See page 29 for details.
- 19 **AV SELECTION**: Selects audio and video settings. (AV mode: STANDARD, DYNAMIC, MOVIE, GAME, USER. PC mode: STANDARD, USER.)
- 20 **DISPLAY**: Displays the channel information.
- 21 **TV GUIDE**: Displays the TV Guide On Screen<sup>®</sup> system.
- 22 **ENTER**: Executes a command.
- 23 **PAGE +/-** (for the TV Guide On Screen<sup>®</sup> system): Scrolls the program listing screen vertically.
- 24 **RETURN**: Returns to the previous menu screen.
- 25 **MENU**: Displays a panel menu in the TV Guide On Screen<sup>™</sup> system.
- 26 **CH ENTER**: Executes a channel number.
- 27 **CH RETURN**: Returns to the previous channel. This button is disabled while the TV Guide On Screen<sup>™</sup> system is display
- 28 **VOL +/-**: Sets the volume.
- 29 **MUTING**: Mutes the sound.
- 30 **SHIFT**: Moves the location of the small screen when in the picture-in-picture mode.
- 31 **SWAP**: Switches between the two screens when in the 2-screen or picture-in-picture mode.

### Luminous remote control buttons (main unit only)

All buttons on the main remote control unit are luminous and gather and store light. This enables quick access to the desired function when performing operations in dark places.

### NOTE

When using the remote control unit, point it at the Plasma Display.

## 4

A

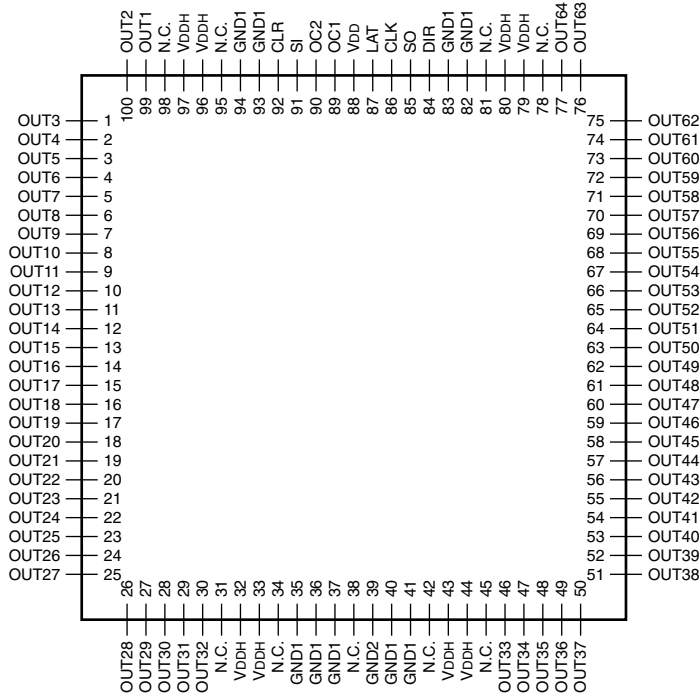


SN755870KPZT, BCM7038KPB1G-B2, R5520H001B, R2S11002AFT, R2S11001FT, UPD64015AGM-UEM, AD9985KSTZ-110, SII9023CTU

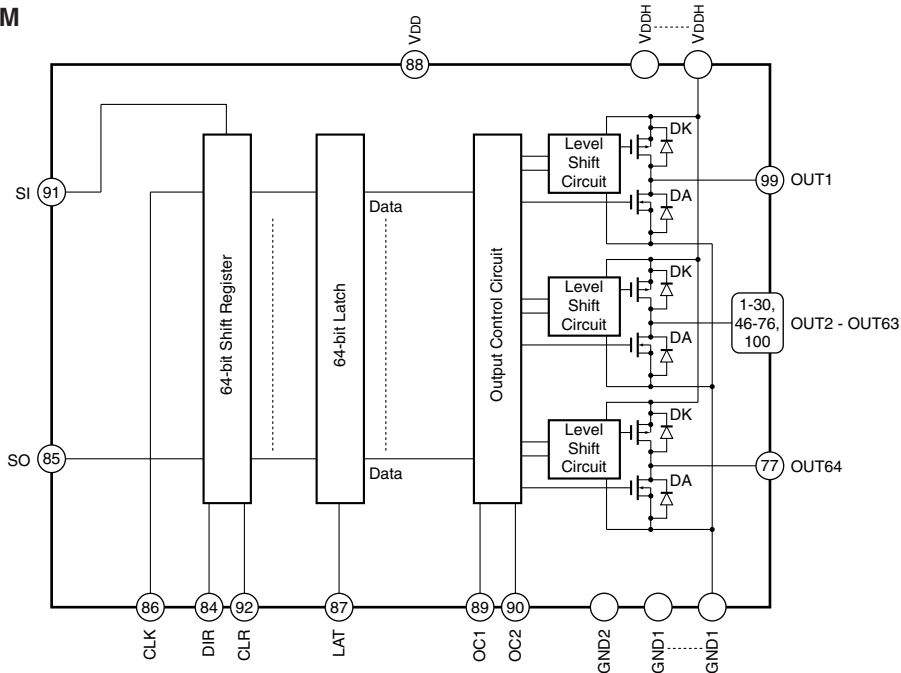


- PLASMA DISPLAY PANEL IC

●



•



# ● PIN FUNNCTION

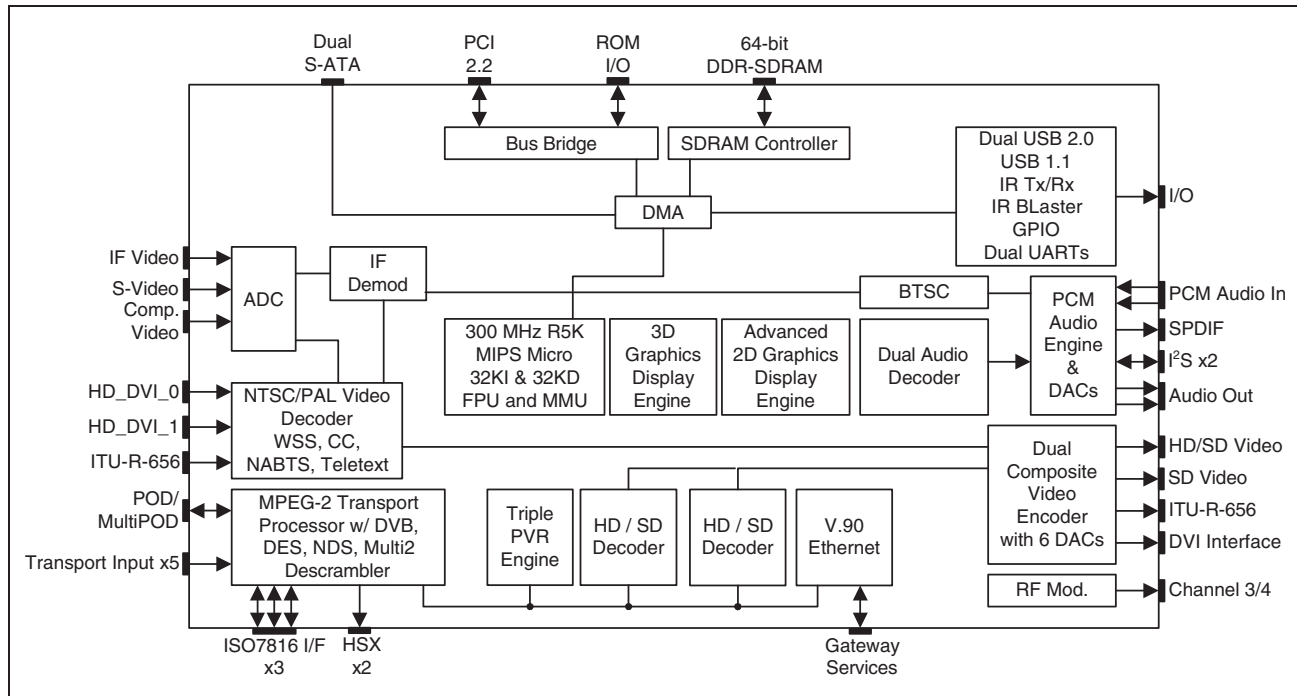
No.	Pin Name	I/O	Pin Function
1 - 30	OUT3 - OUT32	O	High-voltage push-pull output
31	N.C.	–	Not used
32 - 33	VDDH	–	Power for High-voltage circuit
34	N.C.	–	Not used
35 - 37	GND1	–	GND
38	N.C.	–	Not used
39	GND2	–	GND
40 - 41	GND1	–	GND
42	N.C.	–	Not used
43 - 44	VDDH	–	Power for High-voltage circuit
45	N.C.	–	Not used
46 - 77	OUT33 - OUT64	O	High-voltage push-pull output
78	N.C.	–	Not used
79 - 80	VDDH	–	Power for High-voltage circuit
81	N.C.	–	Not used
82 - 83	GND1	–	GND
84	DIR	I	Setting the shift direction of shift-register L : reverse side shift (SO→SI), H : forward side shift (SI→SO)
85	SO	I/O	Serial data In/Out
86	CLK	I	Serial clock Input   Down-side edge trigger
87	LAT	I	LAT data Input L : The data of shiftregister is transferred to ouput latch. H : The ouput data of latch is holded.
88	VDD	–	Power for Logic circuit
89	OC1	I	Output control Output is controlled by truth table right side.
90	OC2	I	
91	SI	I/O	Serial data In/Out
92	CLR	I	All output reset   CLR terminal : L → normal operation, CLR terminal : H→ All output "H"
93 - 94	GND1	–	GND
95	N.C.	–	Not used
96 - 97	VDDH	–	Power for High-voltage circuit
98	N.C.	–	Not used
99 - 100	OUT1 - OUT2	O	High-voltage push-pull output

# **BCM7038KPB1G-B2 (MAIN ASSY : IC6201)**

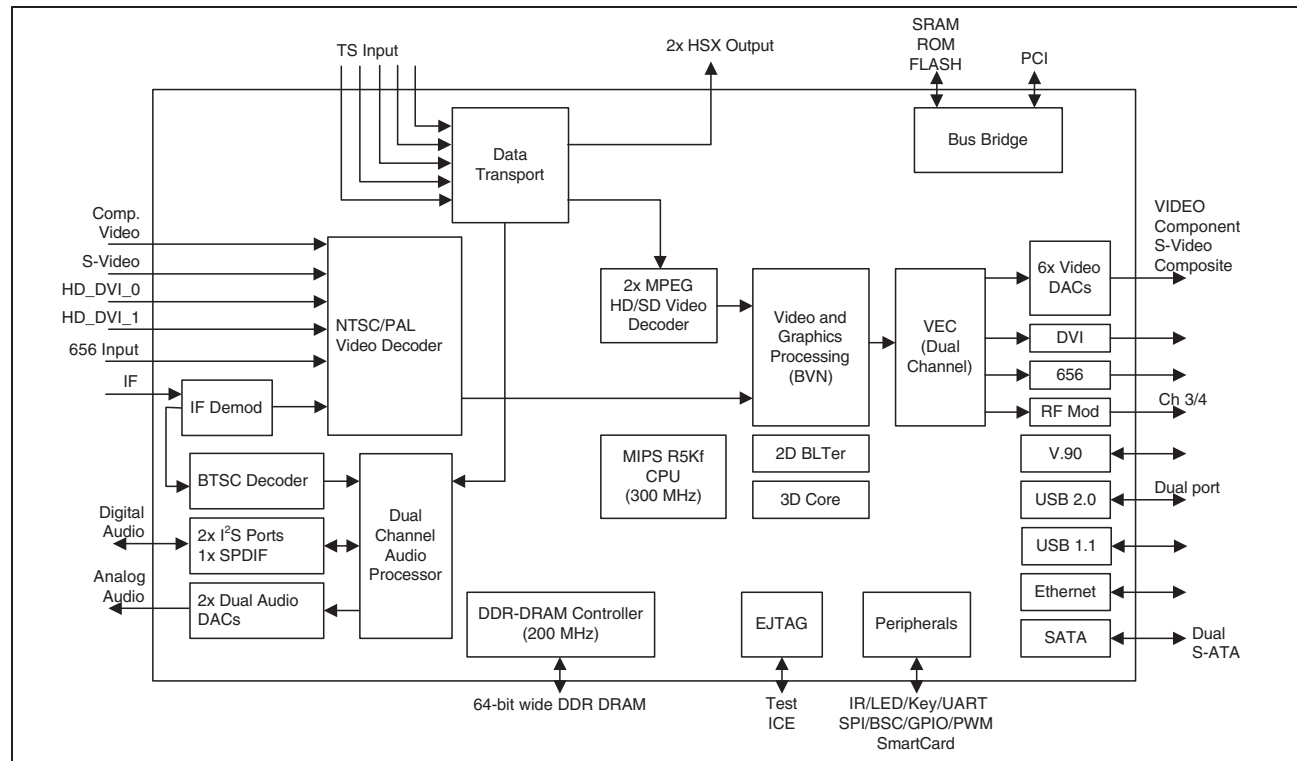
• System IC

## **● BLOCK DIAGRAM**

[System Block Diagram]



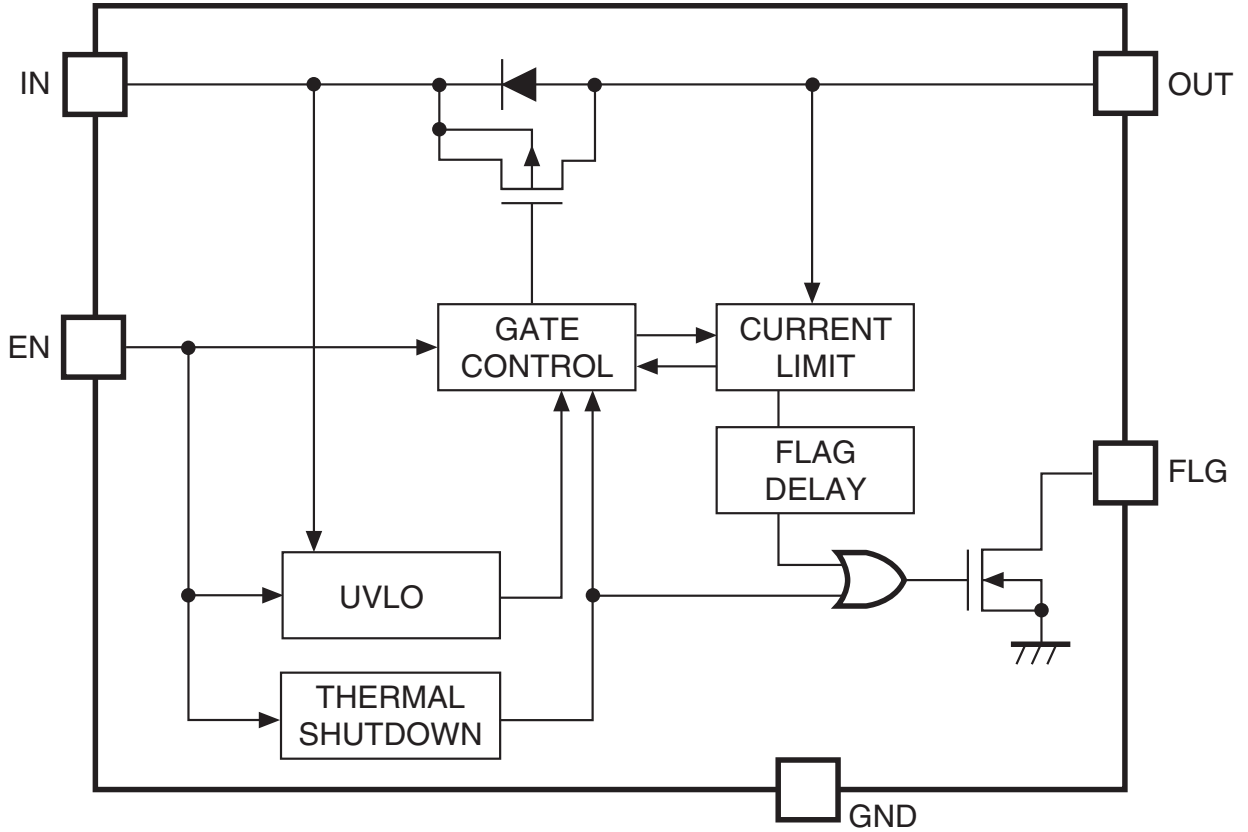
[Functional Block Diagram]



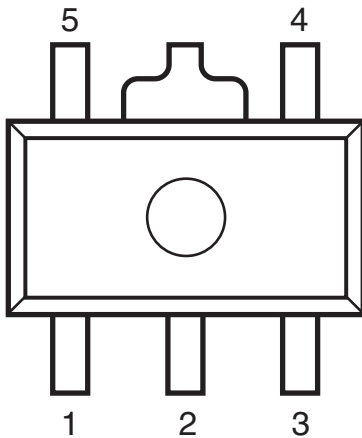
# R5520H001B (MAIN ASSY : IC7105)

• USB HIGH-SIDE SW IC

## BLOCK DIAGRAM



## PIN LAYOUT



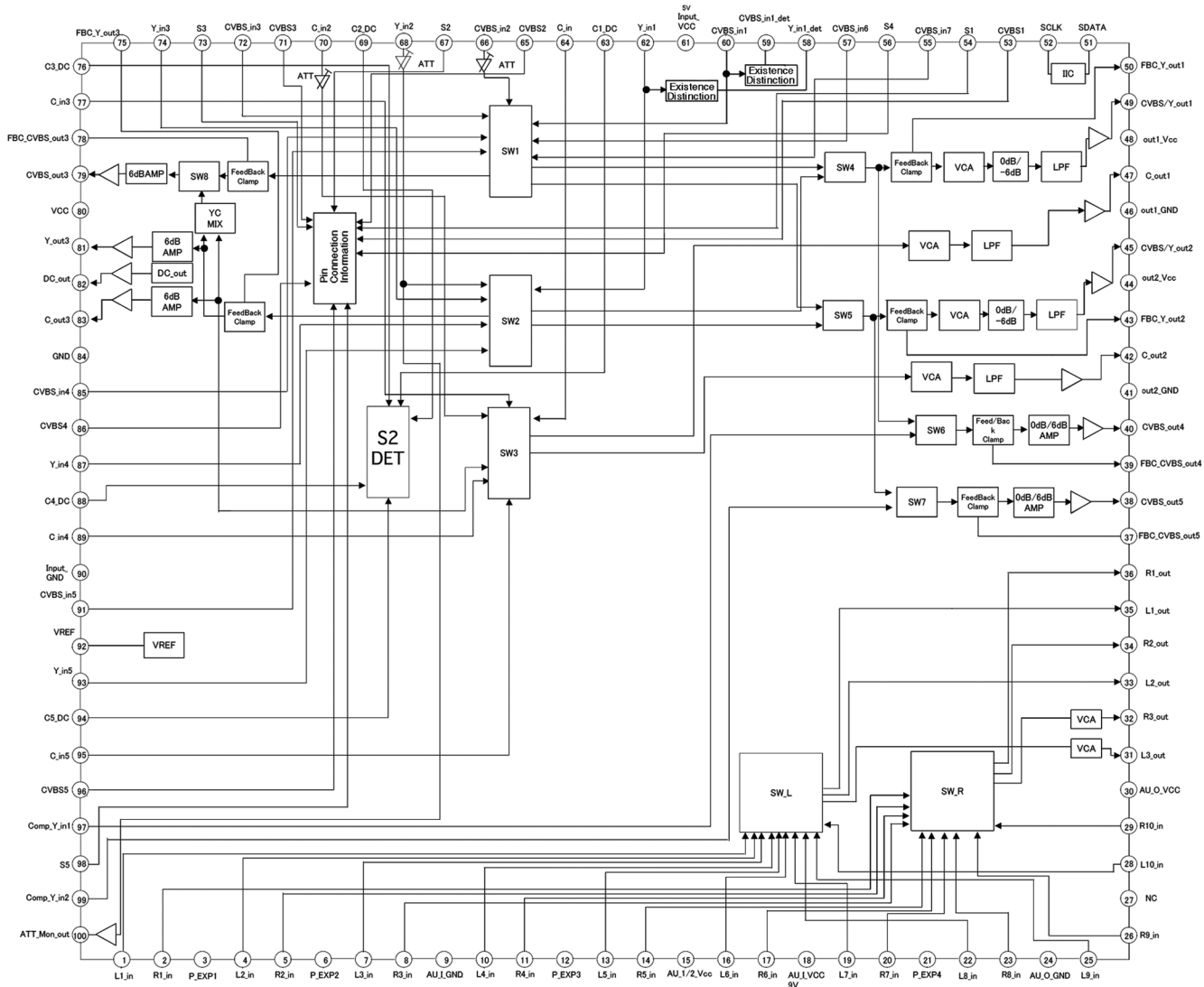
## PIN FUNCTION

Pin No.	Name	Function
1	EN	Enable terminal
2	GND	GND terminal
3	FLG	FLAG terminal (Open-drain output)
4	IN	Power input terminal
5	OUT	Output terminal

# R2S11002AFT (MAIN ASSY: IC4701)

• AV SW

## Block Diagram

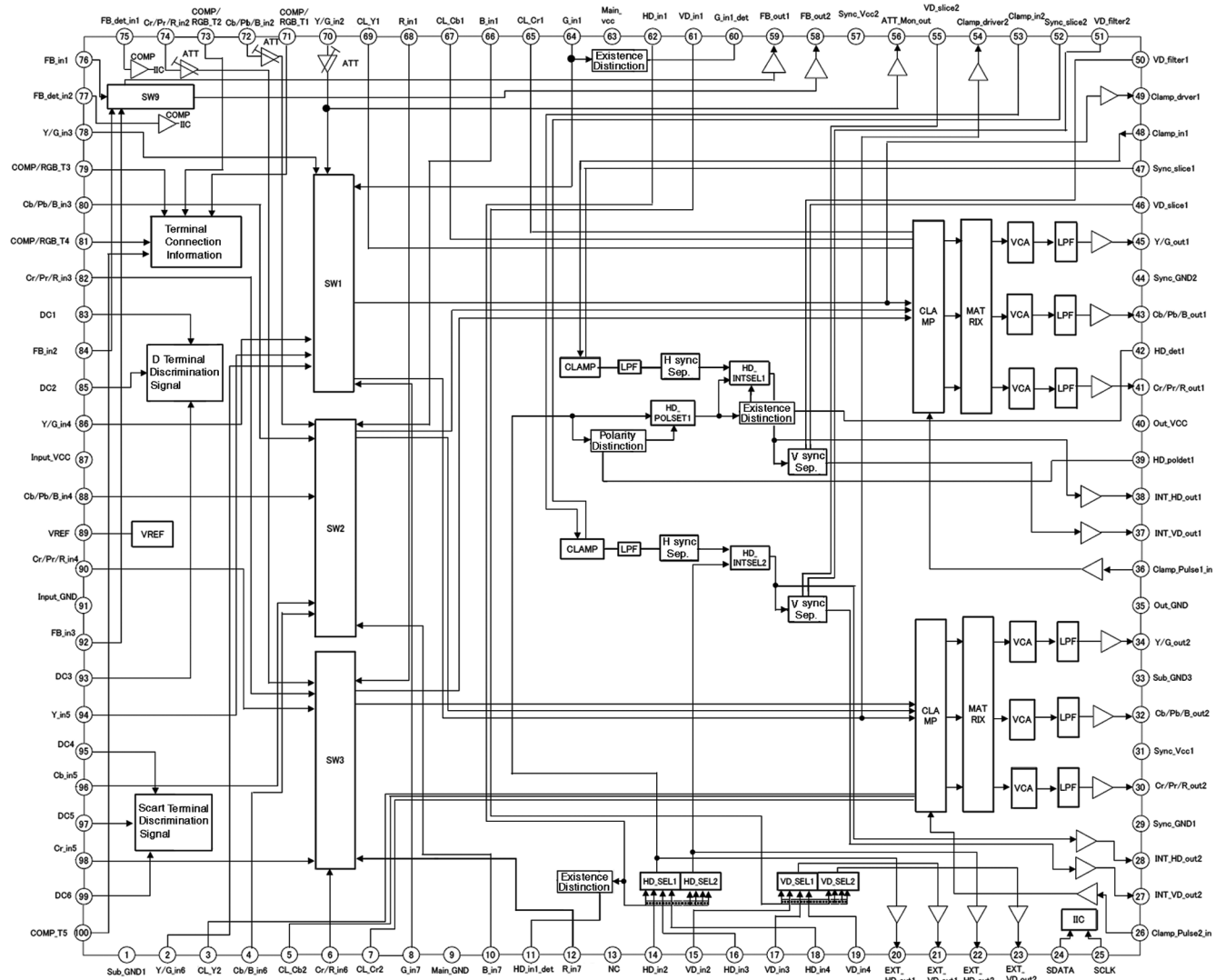




# R2S11001FT (MAIN ASSY: IC4901)

• Component SW IC

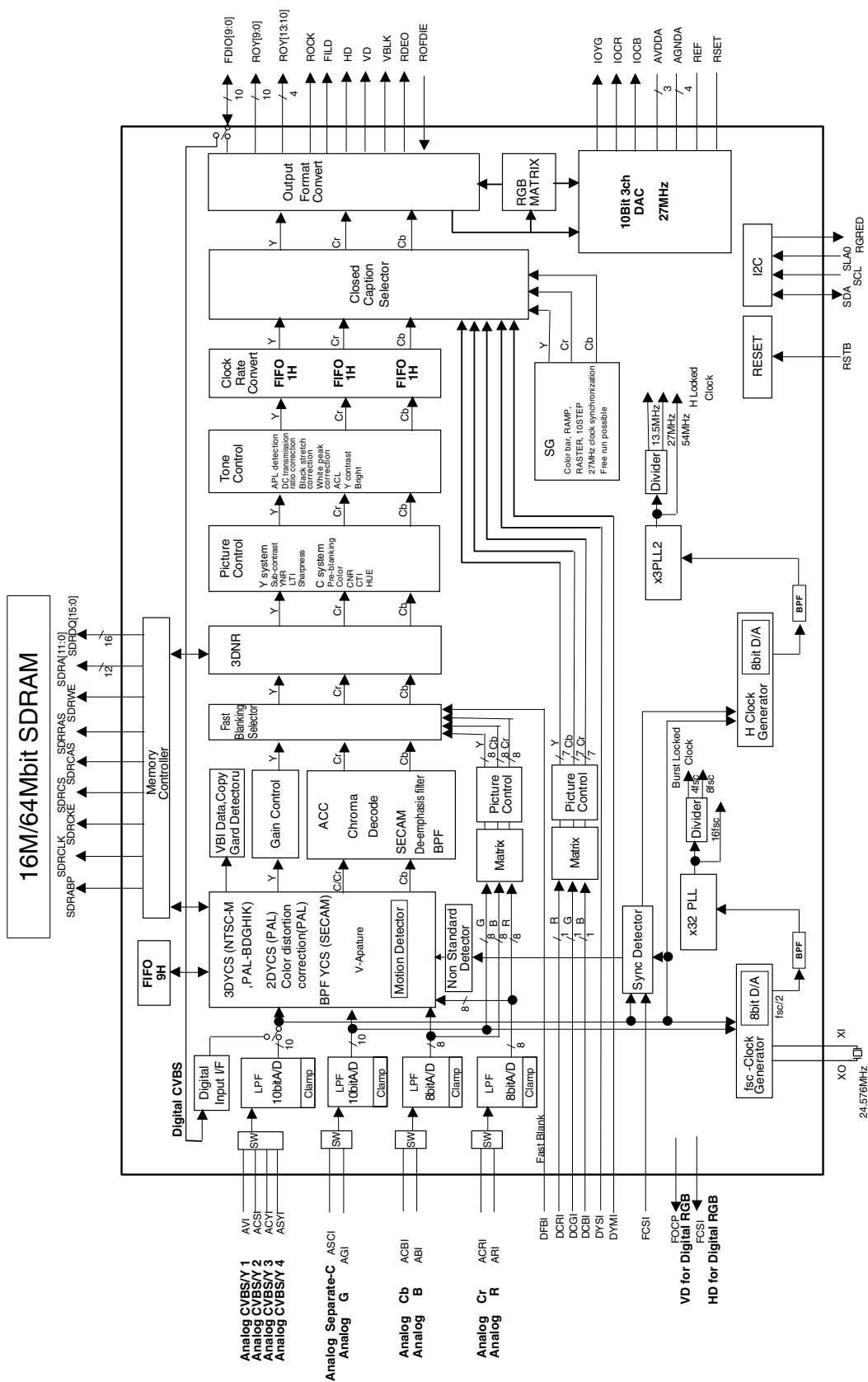
## Block Diagram



# **■ UPD64015AGM-UEM (MAIN ASSY : IC5101)**

• Video decoder (for main screen)

## ● Block Diagram



## A



## ● Pin Function

### 2.1 Power supply/ground terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
AVDD1	138	—	—	—	Analog 1.5V power supply Connect to the 1.5V power supply. Separate it from the other terminals via a filter.
AVDD3	141	—	—	—	Analog 3.3V power supply Connect to the 3.3V power supply. Separate it from the other terminals via a filter.
	155,156,167,168	—	—	—	Analog 3.3V power supply for ADC. Connect to the 3.3V power supply. Separate it from the other power lines via a filter.
AVDDA	61,64,67	—	—	—	Analog 3.3V power supply for DAC. Connect to the 3.3V power supply. Separate it from the other power lines via a filter.
AGND	143,144,145,175,176	—	—	—	Analog ground
AGNDA	58,63,66,69	—	—	—	Analog ground (for DAC)
DVDD1	16,23,27,32,39,48, 57,70,76,81,92,103, 115,125,133	—	—	—	Digital 1.5V power supply Connect to the 1.5V power supply.
DVDD3	1,11,26,44,53,88,98, 109,120,132	—	—	—	Digital 3.3V power supply Connect to the 3.3V power supply.
DGND	17,24,33,38,45,56, 80,89,93,104,114, 126	—	—	—	Digital ground

### 2.2 System reset terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
RSTB	74	I	Schmitt	—	System reset input (Active-Low)

## ● Pin Function

### 2.3 I2C bus interface terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
RGRED	75	O	LVTTL N-ch open drain	6 mA	I <sup>2</sup> C register lead flag output (Active-Low)
SCL	71	I	LVTTL	Fail-safe	I <sup>2</sup> C bus clock input Connect to the SCL line of the system.
SDA	72	I/O	LVTTL N-ch open drain	Fail-safe 6 mA	I <sup>2</sup> C bus data input/output Connect to the SDA line of the system.
SLA0	73	I	LVTTL	—	I <sup>2</sup> C bus slave address selection input (L : B8h/B9h, H : BAh/BBh ) Connect to GND when set to low level and to DVDD3 (3.3V) when set to high level.

### 2.4 Terminal for test

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
SCKSET	2	I	LVTTL	—	Test mode selection (L: normal, H: test mode)
TEST	3	I	LVTTL	—	Test setting (L: normal, H: test mode)
FCKM	77	I	LVTTL	—	FCLK8 test mode selection (L: normal, H: test mode)
BCKM	111	I	LVTTL	—	Test mode selection of BCLK8 terminal. (L: normal, H: test mode)
ATS1	139	I	Analog	—	Analog test input Connect to GND normally.
ATS2	140	I	Analog	—	Analog test input Connect to GND normally.
ATS3	142	I	Analog	—	Analog test input Connect to GND normally.
VLPF1	149	O	Analog	—	Analog test output Connect to GND via a 0.1μF capacitor.
VLPF2	171	O	Analog	—	Analog test output Connect to GND via a 0.1μF capacitor.

**Caution:** Connect these terminals for test to GND unless otherwise instructed.

## ● Pin Function

A

### 2.5 Clock generator terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
XI	55	I	Analog	—	Reference clock input Connect 24.576MHz crystal oscillator.
XO	54	O	Analog	—	Reference clock output Connect 24.576MHz crystal oscillator.
BCLK8	102	I/O	LVTTL 3-state	6 mA	Subsequent stage line lock clock monitor input/output It will become Hi-Z when BCK8OUT (SA1Fh, D5)=0. Normally, set to BCK8OUT=0 and leave it open.

B

### 2.6 Terminal for μPD64031A and μPD64032 digital connection

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
FCLK8	78	I/O	LVTTL 3-state	6 mA	Front stage burst lock clock input/output It will become Hi-Z when FCK8S[2:0] (SA21h, D6-D4)=000b. Normally, set to FCK8S[2:0]=0 and leave it open.
FCKQ	127	I/O	LVTTL 3-state	3 mA	Sampling clock output for μPD64031A and μPD64032 digital connection. It will become Hi-Z when FCKQS[2:0] (SA21h, D2-D0)=000b. Normally, set to FCKQS[2:0]=0 and leave it open.
FOCP	128	I/O	LVTTL 3-state	3 mA	Clamp pulse output for μPD64031A and μPD64032 digital connection/timing output (VD) for digital RGB input. It will become Hi-Z when FOCPS[2:0] (SA23h, D2-D0)=000b. Normally, set to FOCPS[2:0]=0 and leave it open.

C

D

### 2.7 Terminal for RGB input

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
DFBI	130	I	LVTTL	—	Fast Blanking signal input for analog RGB input.
DYSI	131	I	LVTTL	—	YS signal input for digital RGB input.
DYMI	134	I	LVTTL	—	YM signal input for digital RGB input.
DCGI	135	I	LVTTL	—	Digital RGB/G signal input
DCBI	136	I	LVTTL	—	Digital RGB/B signal input
DCRI	137	I	LVTTL	—	Digital RGB/R signal input
FCSI	129	I/O	LVTTL 3-state	3 mA	Sync separation signal input/timing output (HD) for RGB input. It will become Hi-Z when FCSIS[2:0] (SA22h, D2-D0)=000b. Normally, set to FCSIS[2:0]=0 and leave it open.

E

F

## ● Pin Function

### 2.8 ADC1 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
AVI	148	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
ASYI	150	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
ACYI	152	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
ACSI	154	I	Analog	—	ADC1 composite/Y signal input Input the image signal by cutting the capacity.
VCLY	146	O	Analog	—	ADC1 clamp electric potential Connect to GND via 0.1μF and 10μF capacitors.
VCOM1	147	I	Analog	—	ADC1 in-phase reference voltage Connect to GND via a 0.1μF capacitor.
VRB1	151	I	Analog	—	ADC1 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VRT1	153	I	Analog	—	ADC1 top reference voltage Connect to GND via a 0.1μF capacitor.

### 2.9 ADC2 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
ASCI	158	I	Analog	—	ADC2 separate C signal input Input the image signal by cutting the capacity.
AGI	160	I	Analog	—	ADC2 RGB component G signal input Input the image signal by cutting the capacity.
VRT2	157	I	Analog	—	ADC2 top reference voltage Connect to GND via a 0.1μF capacitor.
VRB2	159	I	Analog	—	ADC2 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VCOM2	161	I	Analog	—	ADC2 in-phase reference voltage Connect to GND via a 0.1μF capacitor.

## ● Pin Function

### 2.10 ACD3 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
ACBI	162	I	Analog	—	ADC3 color difference component Cb signal input Input the image signal by cutting the capacity.
ABI	164	I	Analog	—	ADC3 RGB component B signal input Input the image signal by cutting the capacity.
VRT3	163	I	Analog	—	ADC3 top reference voltage Connect to GND via a 0.1μF capacitor.
VRB3	165	I	Analog	—	ADC3 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VCOM3	166	I	Analog	—	ADC3 in-phase reference voltage Connect to GND via a 0.1μF capacitor.

### 2.9 ACD4 section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
ACRI	170	I	Analog	—	ADC4 color difference component Cr signal input Input the image signal by cutting the capacity.
ARI	172	I	Analog	—	ADC3 RGB component R signal input Input the image signal by cutting the capacity.
VCOM4	169	I	Analog	—	ADC4 in-phase reference voltage Connect to GND via a 0.1μF capacitor.
VRB4	173	I	Analog	—	ADC4 bottom reference voltage Connect to GND via a 0.1μF capacitor.
VRT4	174	I	Analog	—	ADC4 top reference voltage Connect to GND via a 0.1μF capacitor.

### 2.12 DAC section terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
IO-YG	62	O	Analog	—	Color difference component Y/RGB component G output signal. Connect to AGNDA via a 200Ω load resistance.
IO-CR	68	O	Analog	—	Color difference component Cr/RGB component R output signal. Connect to AGNDA via a 200Ω load resistance.
IO-CB	65	O	Analog	—	Color difference component Cb/RGB component B output signal. Connect to AGNDA via a 200Ω load resistance.
REF	59	I	Analog	—	External reference input pin. Supply 1.0V. And, connect to AGNDA via a 0.1μF capacitor.
RSET	60	O	Analog	—	Connect to AGNDA via a 620Ω resistor for external adjustment.



## ● Pin Function

### 2.13 Digital image input/output terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
FDIO0-FDIO9	112,113,116, 117,118,119, 121,122,123, 124	I/O	LVTTL 3-state	6 mA	Digital 8/10 bit Cb, Cr output/input at the time of μPD64031A digital connection. It will become Hi-Z when FDIOS[2:0] (SA22h, D6-D4)=000b. Leave it open when not in use.
ROCK	101	O	LVTTL 3-state	6 mA	Clock for digital ITU-R BT.656/component output.
ROY0-ROY13	100,99,97,96, 95,94,91,90, 87,86,85,84, 83,82	O	LVTTL 3-state	6 mA	Digital ITU-R BT.656/component output. Digital RGB component (8 bit) output
ROFDIE	79	I	LVTTL	—	Image input/output terminal output enable. The state of ROY[13:0], ROCK, HD, VD, VBLK, FILD and RDEO terminals is controlled. L: Output terminal Hi-Z, H: Output enable Normally, pull up to 3.3V.

### 2.14 timing output terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
HD	105	O	LVTTL 3-state	3 mA	Horizontal sync signal output
VD	106	O	LVTTL 3-state	3 mA	Vertical sync signal output
VBLK	107	O	LVTTL 3-state	3 mA	V blanking output
FILD	108	O	LVTTL 3-state	3 mA	Field output
RDEO	110	O	LVTTL 3-state	3 mA	Effective pixel range output

## ● Pin Function

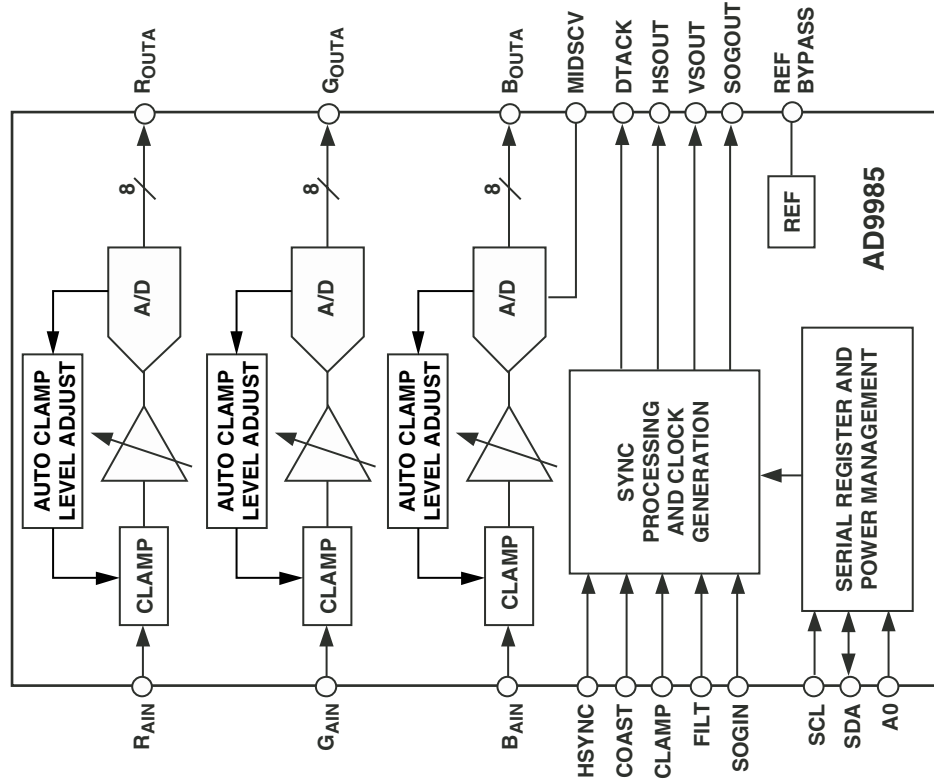
### 2.15 Memory interface terminal

Acronyms	Terminal number	I/O	Level	Buffer type PU/PD [kΩ]	Functions
SDRABP	4	O	LVTTL 3-state	3 mA	All bank pre-charge output for external memory (Active-High)
SDRCLK	25	O	LVTTL 3-state	9 mA	Clock output for external memory
SDRCKE	21	O	LVTTL 3-state	3 mA	Clock enable output for external memory (Active-High)
SDRCS	20	O	LVTTL 3-state	3 mA	Chip select output for external memory (Active-Low)
SDRCAS	28	O	LVTTL 3-state	3 mA	Column address strobe output for external memory (Active-Low)
SDRRAS	22	O	LVTTL 3-state	3 mA	Low address strobe output for external memory (Active-Low)
SDRWE	29	O	LVTTL 3-state	3 mA	Write enable output for external memory (Active-Low)
SDRA0 -SDRA11	19,18,15,14, 13,12,10,9,8, 7,6,5	O	LVTTL 3-state	3 mA	Address output for external memory Insert a damping resistor of approximately 100Ω, and connect to the SDRAM address terminal.
SDRDQ0 -SDRDQ15	51,49,46,42, 40,36,34,30, 31,35,37,41, 43,47,50,52	I/O	LVTTL 3-state	6 mA	Data input/output for external memory.

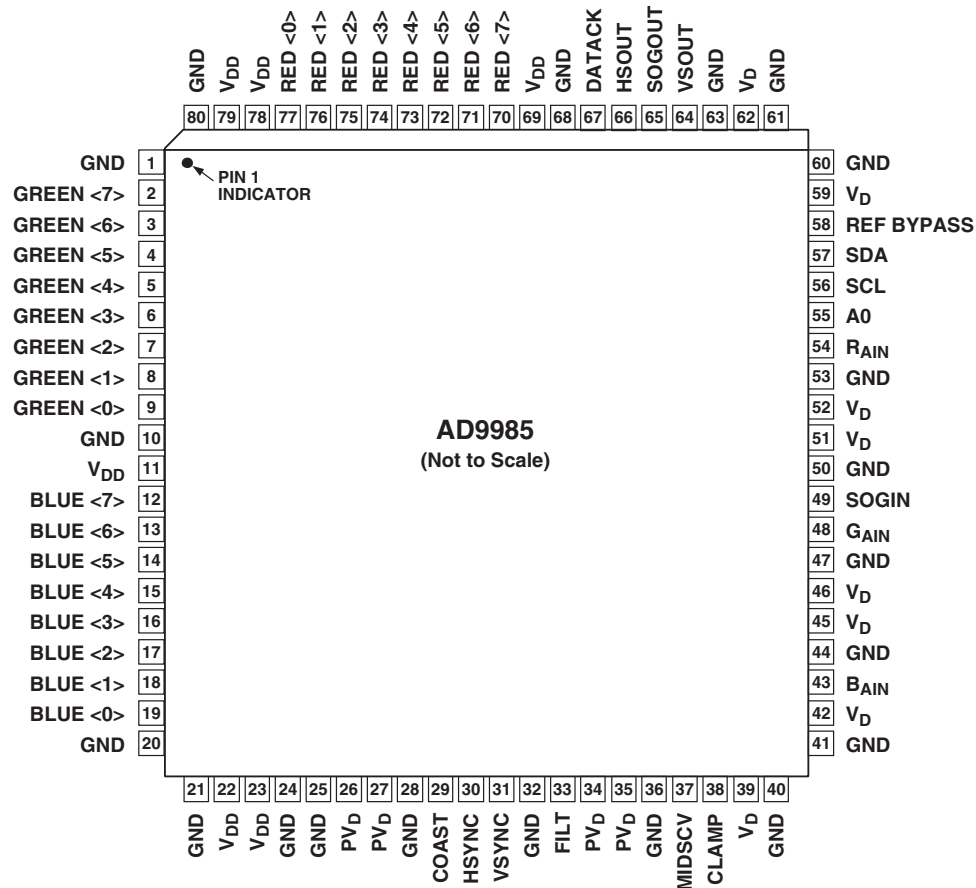
# **AD9985KSTZ-110-K (MAIN ASSY : IC5301)**

• ADC

## ● Block Diagram



## ● Pin Arrangement (Top View)



## ● Pin Function

Pin Type	Mnemonic	Function	Value	Pin No.
Inputs	R <sub>AIN</sub>	Analog Input for Converter R	0.0 V to 1.0V	54
	G <sub>AIN</sub>	Analog Input for Converter G	0.0 V to 1.0V	48
	B <sub>AIN</sub>	Analog Input for Converter B	0.0 V to 1.0V	43
	HSYNC	Horizontal SYNC Input	3.3 V CMOS	30
	VSYNC	Vertical SYNC Input	3.3 V CMOS	31
	SOGIN	Input for Sync-on-Green	0.0 V to 1.0 V	49
	CLAMP	Clamp Input (External CLAMP Signal)	3.3 V CMOS	38
	COAST	PLL COAST Signal Input	3.3 V CMOS	29
Outputs	Red [7:0]	Outputs of Converter Red, Bit 7 is the MSB	3.3 V CMOS	70–77
	Green [7:0]	Outputs of Converter Green, Bit 7 is the BSB	3.3 V CMOS	2–9
	Blue [7:0]	Outputs of Converter Blue, Bit 7 is the BSB	3.3 V CMOS	12–19
	DATAACK	Data Output Clock	3.3 V CMOS	67
	HSOUT	HSYNC Output (Phase-Aligned with DATAACK)	3.3 V CMOS	66
	VSOUT	VSYNC Output (Phase-Aligned with DATAACK)	3.3 V CMOS	64
	SOGOUT	Sync-on-Green Slicer Output	3.3 V CMOS	65
References	REF BYPASS	Internal Reference Bypass	1.25 V	58
	MIDSCV	Internal Midscale Voltage Bypass		37
	FILT	Connection for External Filter Components for Internal PLL		33
Power Supply	V <sub>D</sub>	Analog Power Supply	3.3 V	39, 42, 45, 46, 51, 52, 59, 62
	V <sub>DD</sub>	Output Power Supply	3.3 V	11, 22, 23, 69, 78, 79
	PV <sub>D</sub>	PLL Power Supply	3.3 V	26, 27, 34, 35
	GND	Ground	0 V	1, 10, 20, 21, 24, 25, 28, 32, 36, 40, 41, 44, 47, 50, 53, 60, 61, 63, 68, 80
Control	SDA	Serial Port Data I/O	3.3 V CMOS	57
	SCL	Serial Port Data Clock (100 kHz Maximum)	3.3 V CMOS	56
	A0	Serial Port Address Input 1	3.3 V CMOS	55

## ● Pin Function

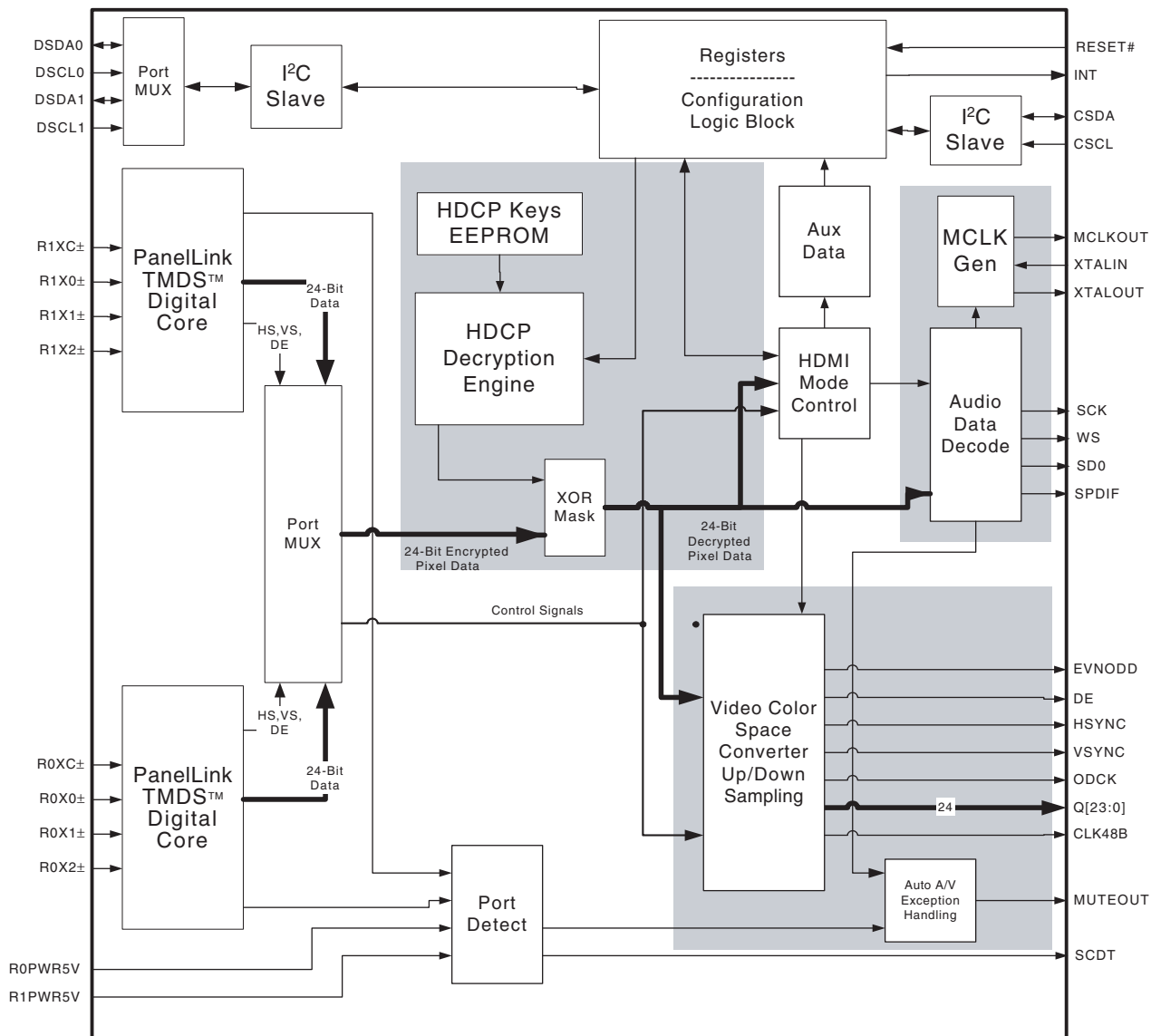
Pin Name	Function
<b>OUTPUTS</b>	
HSOUT	Horizontal Sync Output A reconstructed and phase-aligned version of the Hsync input. Both the polarity and duration of this output can be programmed via serial bus registers. By maintaining alignment with DATAACK and Data, data timing with respect to horizontal sync can always be determined.
VSOUT	Vertical Sync Output A reconstructed and phase-aligned version of the video Vsync. The polarity of this output can be controlled via a serial bus bit. The placement and duration in all modes is set by the graphics transmitter.
SOGOUT	Sync-On-Green Slicer Output This pin outputs either the signal from the Sync-on-Green slicer comparator or an unprocessed but delayed version of the Hsync input. See the Sync Processing Block Diagram to view how this pin is connected. (Note: Besides slicing off SOG, the output from this pin gets no other additional processing on the AD9985. Vsync separation is performed via the sync separator.)
<b>SERIAL PORT (2-Wire)</b>	
SDA	Serial Port Data I/O
SCL	Serial Port Data Clock
A0	Serial Port Address Input 1
For a full description of the 2-wire serial register and how it works, refer to the 2-wire serial control port section.	
<b>DATA OUTPUTS</b>	
RED	Data Output, Red Channel
GREEN	Data Output, Green Channel
BLUE	Data Output, Blue Channel
The main data outputs. Bit 7 is the MSB. The delay from pixel sampling time to output is fixed. When the sampling time is changed by adjusting the PHASE register, the output timing is shifted as well. The DATAACK and HSOUT outputs are also moved, so the timing relationship among the signals is maintained. For exact timing information.	
<b>DATA CLOCK OUTPUT</b>	
DATAACK	Data Output Clock The main clock output signal used to strobe the output data and HSOUT into external logic. It is produced by the internal clock generator and is synchronous with the internal pixel sampling clock. When the sampling time is changed by adjusting the PHASE register, the output timing is shifted as well. The Data, DATAACK, and HSOUT outputs are all moved, so the timing relationship among the signals is maintained.
<b>INPUTS</b>	
R <sub>AIN</sub>	Analog Input for Red Channel
G <sub>AIN</sub>	Analog Input for Green Channel
B <sub>AIN</sub>	Analog Input for Blue Channel
High impedance inputs that accept the Red, Green, and Blue channel graphics signals, respectively. (The three channels are identical, and can be used for any colors, but colors are assigned for convenient reference.) They accommodate input signals ranging from 0.5 V to 1.0 V full scale. Signals should be ac-coupled to these pins to support clamp operation.	
HSYNC	Horizontal Sync Input This input receives a logic signal that establishes the horizontal timing reference and provides the frequency reference for pixel clock generation. The logic sense of this pin is controlled by serial Register 0EH Bit 6 (Hsync Polarity). Only the leading edge of Hsync is active; the trailing edge is ignored. When Hsync Polarity = 0, the falling edge of Hsync is used. When Hsync Polarity = 1, the rising edge is active. The input includes a Schmitt trigger for noise immunity, with a nominal input threshold of 1.5 V.
VSYNC	Vertical Sync Input The input for vertical sync.

## ● Pin Function

Pin Name	Function
SOGIN	<p>Sync-on-Green Input</p> <p>This input is provided to assist with processing signals with embedded sync, typically on the Green channel. The pin is connected to a high speed comparator with an internally generated threshold. The threshold level can be programmed in 10 mV steps to any voltage between 10 mV and 330 mV above the negative peak of the input signal. The default voltage threshold is 150 mV. When connected to an ac-coupled graphics signal with embedded sync, it will produce a noninverting digital output on SOGOUT. (This is usually a composite sync signal, containing both vertical and horizontal sync information that must be separated before passing the horizontal sync signal to Hsync.) When not used, this input should be left unconnected. For more details on this function and how it should be configured, refer to the Sync-on-Green section.</p>
CLAMP	<p>External Clamp Input</p> <p>This logic input may be used to define the time during which the input signal is clamped to ground. It should be exercised when the reference dc level is known to be present on the analog input channels, typically during the back porch of the graphics signal. The CLAMP pin is enabled by setting control bit Clamp Function to 1 (Register 0FH, Bit 7, default is 0). When disabled, this pin is ignored and the clamp timing is determined internally by counting a delay and duration from the trailing edge of the Hsync input. The logic sense of this pin is controlled by Clamp Polarity Register 0FH, Bit 6. When not used, this pin must be grounded and Clamp Function programmed to 0.</p>
COAST	<p>Clock Generator Coast Input (Optional)</p> <p>This input may be used to cause the pixel clock generator to stop synchronizing with Hsync and continue producing a clock at its current frequency and phase. This is useful when processing signals from sources that fail to produce horizontal sync pulses during the vertical interval. The COAST signal is generally not required for PC-generated signals. The logic sense of this pin is controlled by Coast Polarity (Register 0FH, Bit 3). When not used, this pin may be grounded and Coast Polarity programmed to 1, or tied HIGH (to <math>V_D</math> through a 10 k <math>\Omega</math> resistor) and Coast Polarity programmed to 0. Coast Polarity defaults to 1 at power-up.</p>
REF BYPASS	<p>Internal Reference BYPASS</p> <p>Bypass for the internal 1.25 V band gap reference. It should be connected to ground through a 0.1 <math>\mu</math>F capacitor. The absolute accuracy of this reference is <math>\pm 4\%</math>, and the temperature coefficient is <math>\pm 50</math> ppm, which is adequate for most AD9985 applications. If higher accuracy is required, an external reference may be employed instead.</p>
MIDSCV	<p>Midscale Voltage Reference BYPASS</p> <p>Bypass for the internal midscale voltage reference. It should be connected to ground through a 0.1 <math>\mu</math>F capacitor. The exact voltage varies with the gain setting of the Blue channel.</p>
FILT	<p>External Filter Connection</p> <p>For proper operation, the pixel clock generator PLL requires an external filter. Connect the filter shown in Figure to this pin. For optimal performance, minimize noise and parasitics on this node.</p>
<b>POWER SUPPLY</b>	
$V_D$	<p>Main Power Supply</p> <p>These pins supply power to the main elements of the circuit. They should be filtered and as quiet as possible.</p>
$V_{DD}$	<p>Digital Output Power Supply</p> <p>A large number of output pins (up to 25) switching at high speed (up to 110 MHz) generates a lot of power supply transients (noise). These supply pins are identified separately from the <math>V_D</math> pins so special care can be taken to minimize output noise transferred into the sensitive analog circuitry. If the AD9985 is interfacing with lower voltage logic, <math>V_{DD}</math> may be connected to a lower supply voltage (as low as 2.5 V) for compatibility.</p>
$PV_D$	<p>Clock Generator Power Supply</p> <p>The most sensitive portion of the AD9985 is the clock generation circuitry. These pins provide power to the clock PLL and help the user design for optimal performance. The designer should provide quiet, noise-free power to these pins.</p>
GND	<p>Ground</p> <p>The ground return for all circuitry on-chip. It is recommended that the AD9985 be assembled on a single solid ground plane, with careful attention given to ground current paths.</p>

■ **SiI9023CTU (MAIN ASSY : IC5401)**  
 • HDMI Rx

● **Block Diagram**



● Pin Arrangement (Top View)

A

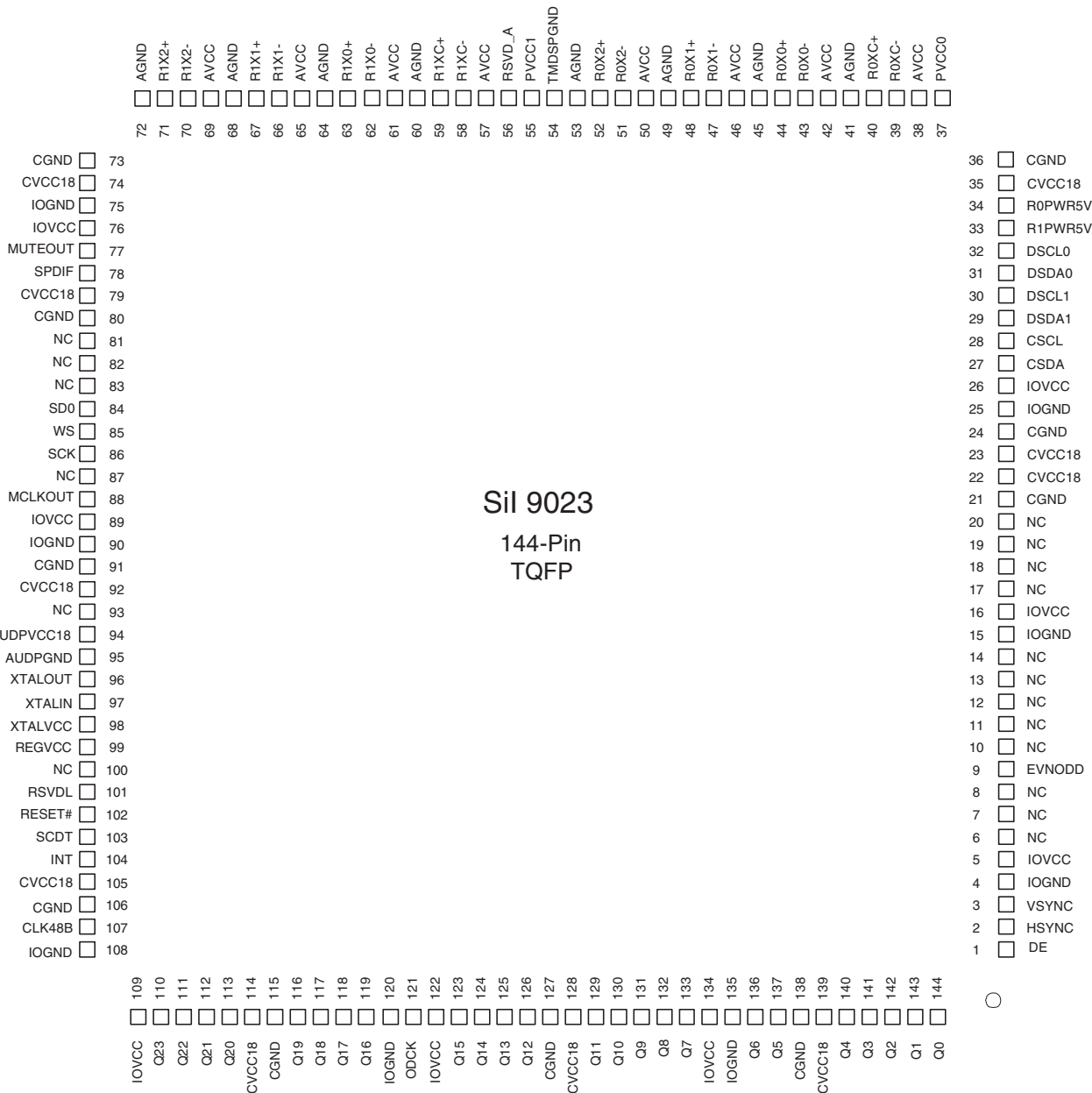
B

C

D

E

F





## ● Pin Function

### Digital Video Output Pins

Pin Name	Pin #	Strength	Type	Dir	Description
Q0	144	8 mA	LVTTL	Output	24-bit Output Pixel Data Bus.
Q1	143		LVTTL	Output	
Q2	142		LVTTL	Output	
Q3	141		LVTTL	Output	
Q4	140		LVTTL	Output	
Q5	137		LVTTL	Output	
Q6	136		LVTTL	Output	
Q7	133		LVTTL	Output	
Q8	132		LVTTL	Output	
Q9	131		LVTTL	Output	
Q10	130		LVTTL	Output	
Q11	129		LVTTL	Output	
Q12	126		LVTTL	Output	
Q13	125		LVTTL	Output	
Q14	124		LVTTL	Output	
Q15	123		LVTTL	Output	
Q16	119		LVTTL	Output	
Q17	118		LVTTL	Output	
Q18	117		LVTTL	Output	
Q19	116		LVTTL	Output	
Q20	113		LVTTL	Output	
Q21	112		LVTTL	Output	
Q22	111		LVTTL	Output	
Q23	110		LVTTL	Output	
DE	1	12 mA	LVTTL	Output	Data enable.
HSYNC	2		LVTTL	Output	Horizontal Sync Output control signal.
VSYNC	3		LVTTL	Output	Vertical Sync Output control signal.
ODCK	121		LVTTL	Output	Output Data Clock.

## ● Pin Function

### Digital Audio Output Pins

Pin Name	Pin #	Strength	Type	Dir	Description
XTALIN	97	—	LVTTL	In	Crystal Clock Input.
XTALOUT	96	—	LVTTL	Out	Crystal Clock Output.
MCLKOUT	88	8 mA	LVTTL	Out	Audio Master Clock Output.
SCK	86	4 mA	LVTTL	Out	I <sup>2</sup> S Serial Clock Output.
WS	85	4 mA	LVTTL	Out	I <sup>2</sup> S Word Select Output.
SD0	84	4 mA	LVTTL	Out	I <sup>2</sup> S Serial Data Output.
SPDIF	78	4 mA	LVTTL	Out	S/PDIF Audio Output.
MUTEOUT	77	4 mA	LVTTL	Out	Mute Audio Output.

### Configuration/Programming Pins

Pin Name	Pin #	Strength	Type	Dir	Description
INT	104	4 mA	LVTTL <sup>1</sup>	Out	Interrupt Output
RESET#	102	—	Schmitt	In	Reset Pin. Active LOW. 5V Tolerant.
DSCL0	32	—	Schmitt	In	DDC I <sup>2</sup> C Clock for Port 0. 5V Tolerant.
DSDA0	31	4 mA	Schmitt	Bi-Di	DDC I <sup>2</sup> C Data for Port 0. 5V Tolerant.
DSCL1	30	—	Schmitt	In	DDC I <sup>2</sup> C Clock for Port 1. 5V Tolerant.
DSDA1	29	4 mA	Schmitt	Bi-Di	DDC I <sup>2</sup> C Data for Port 1. 5V Tolerant.
CSCL	28	—	Schmitt	In	Configuration I <sup>2</sup> C Clock. 5V Tolerant.
CSDA	27	4 mA	Schmitt	Bi-Di	Configuration I <sup>2</sup> C Data. 5V Tolerant.
SCDT	103	12 mA	LVTTL	Out	Indicates active video at HDMI input port.
CLK48B	107	12 mA	LVTTL	Bi-Di	Data Bus Latch Enable. <sup>2</sup>
R0PWR5V	34	—	Schmitt	In	Port 0 Transmitter Detect. 5V Tolerant.
R1PWR5V	33	—	Schmitt	In	Port 1 Transmitter Detect. 5V Tolerant.
RSVDL	101	—	LVTTL	In	Reserved, must be tied LOW.
RSVD_A	56	—	—	—	Reserved Pin, leave unconnected.
NC	6,7,8,10,11,12,13,14,17,18,19,20,81,82,83,87,93,100	—	—	—	No internal connection.
EVNODD	9	8 mA	LVTTL	Out	Indicates Even or Odd field for interlaced formats. Polarity programmable in register.

#### Notes:

1. The INT pin is programmable as either a push-pull LVTTL output, or as an open-drain output.
2. CLK48B is used to clock external 24-to-48 bit latches. CLK48B is also latched on the rising edge of RESET# to set the I2C device addresses for CSCL/CSDA. Refer to Table 10. CLK48B has a weak internal pull-down, and so will be latched as a LOW if not otherwise connected.

## ● Pin Function

### Differential Signal Data Pins

Pin Name	Pin #	Type	Description	
R0XC+	40	Analog	TMDS input clock pair.	HDMI Port 0
R0XC-	39	Analog		
R0X0+	44	Analog	TMDS input data pair.	
R0X0-	43	Analog		
R0X1+	48	Analog	TMDS input data pair.	
R0X1-	47	Analog		
R0X2+	52	Analog	TMDS input data pair.	
R0X2-	51	Analog		
R1XC+	59	Analog	TMDS input clock pair.	HDMI Port 1
R1XC-	58	Analog		
R1X0+	63	Analog	TMDS input data pair.	
R1X0-	62	Analog		
R1X1+	67	Analog	TMDS input data pair.	
R1X1-	66	Analog		
R1X2+	71	Analog	TMDS input data pair.	
R1X2-	70	Analog		

### Power and Ground Pins

Pin Name	Pin #	Type	Description	Supply
CVCC18	22, 23, 35, 74, 79, 92, 105, 114, 128, 139	Power	Digital Logic VCC	1.8V
CGND	21, 24, 36, 73, 80, 91, 106, 115, 127, 138	Ground	Digital Logic GND	
IOVCC	5, 16, 26, 76, 89, 109, 122, 134	Power	Input/Output Pin VCC	3.3V
IOGND	4, 15, 25, 75, 90, 108, 120, 135	Ground	Input/Output Pin GND	
AVCC	38, 42, 46, 50, 57, 61, 65, 69	Power	TMDS Analog VCC	3.3V
AGND	41, 45, 49, 53, 60, 64, 68, 72	Ground	TMDS Analog GND	
PVCC0	37	Power	TMDS Port 0 PLL VCC	3.3V
PVCC1	55	Power	TMDS Port 1 PLL VCC	3.3V
TMDSPGND	54	Ground	TMDS PLL GND	
AUDPVCC18	94	Power	ACR PLL VCC	1.8V
AUDPGND	95	Ground	ACR PLL GND	
XTALVCC	98	Power	ACR PLL Crystal Input VCC	3.3V
REGVCC	99	Power	ACR PLL Regulator VCC	3.3V